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POWERING TELECOM Electric utilities are getting juiced about providing telecommunications services. Page 21.

WIRELESS FORCES Find out why the military has purchased wireless LANs, cellular PCS systems and other gear. Page 17

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NetworkWorld

July 2, 2001 Volume 18, Number 27

The network portal: www.nwfusion.com

Microsoft ruling may spur more software integration

BY JOHN FONTANA

WASHINGTON, D.C. — Regardless of what happens to Microsoft in the wake of last week's U.S. Court of Appeals ruling, IT executives will likely see major vendors aggressively step up their software integration projects as they scuffle to grab enterprise customers.

The reason is linked to a core issue in the Microsoft case that has been nearly wiped off the legal docket by the Appeals Court: Microsoft's alleged illegal integration of its products. The Appeals Court has twice now rejected the claim that Microsoft illegally tied products together in violation of Section 1 of the Sherman

See **Microsoft**, page 16

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ONLINE

The decision
Read our news stories on the court's conclusions.

Our forum
What did you think about the decision?

Industry reaction
Find out what other IT vendors thought of the court's assessment.

Case background
Read earlier *Network World* articles about the case.

DocFinder 4958 find it online

'Day One' at Novell promises big shakeup

BY DENI CONNOR

PROVO, UTAH — July 11 has been dubbed "Day One" at Novell.

While details remain guarded, sources say the latest in a series of organizational shakeups by the reeling network giant is likely to raise anxieties among enterprise customers and mean unemployment for top Novell executives. Day One will mark the finalization of Novell's merger with Cambridge Technology Partners, as well as the official move of CTP's top executive, Jack Messman, into the CEO seat at Novell.

"Any [company] that is using and betting the farm on Novell technology is lying if they say they're not concerned," says Chip DiComo, manager of global information services for Hellman Worldwide Logistics, a freight company.

However, Novell sources insist any such concerns can be allayed.

"'Day One' is an awesome opportunity for Novell to provide more complete solutions to enterprise customers," says a Novell employee who asked not to be identified. "You are going to see the transformation of Novell from a company that is selling products to a company that is going to be an interactive part of a customer's IS shop."

Novell will hold a press conference that day to announce the "new leadership structure

See **Novell**, page 12

Outgoing Novell CEO Eric Schmidt discusses his failures, successes and his successor, Jack Messman (right).

PHOTO (LEFT): ©2001 STEVEN BORNS

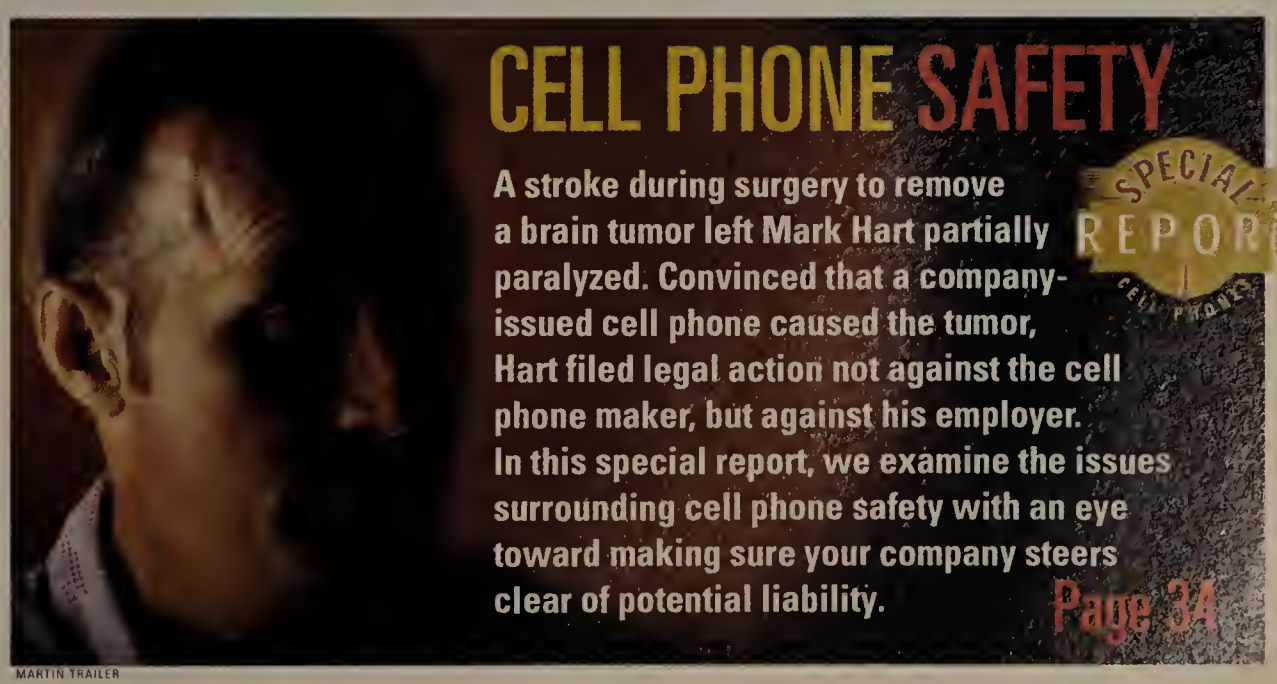
Should B2B markets start over?

BY ELLEN MESSMER AND KATHLEEN OHLSON

CHICAGO — The retail industry's three main competing business-to-business exchanges have rushed over the last year to spend almost a half-billion dollars on comparable software that barely works, and the best thing for the retailing industry would be to either consolidate their efforts or start over again.

That's the view of one insider, Gerald Storch, vice chairman of the nationwide department store chain Target and chair of one of the online

See **B2B**, page 14



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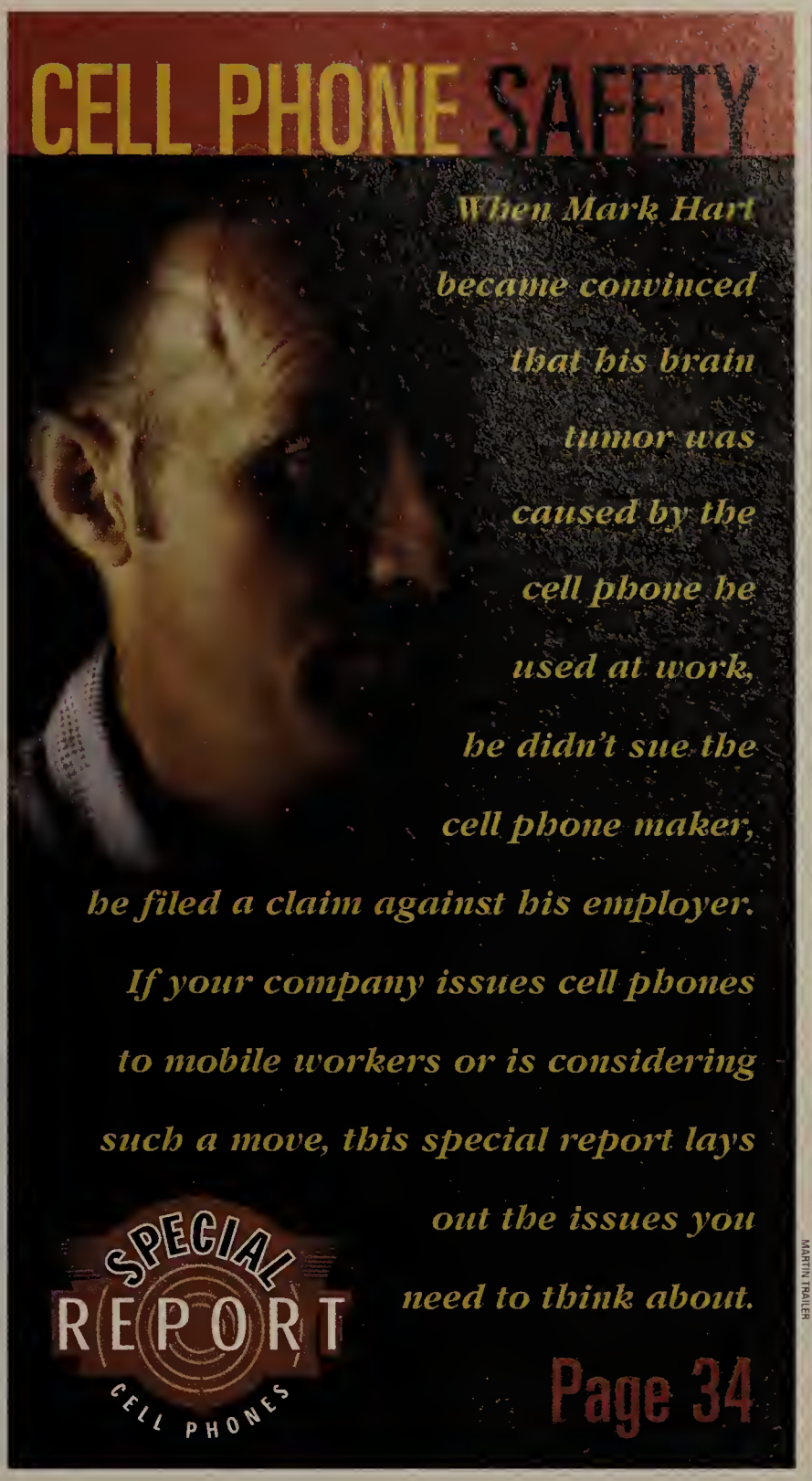

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REVIEWS

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The Network World Global Test Alliance recently put this new PDA through its paces. Find out about all the new extras in this Fusion exclusive review. **DocFinder: 4934**

Multinetwork Manager

Read our review on how this utility eases multiple LAN access.

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Microsoft ruling

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Charge-back methods

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Would you hire an SSP to back up your data?

A user seeks suggestions from people who have used a storage service provider. What are the gotchas? **DocFinder: 4938**

RESEARCH

Checking out 3G

Recent telecommunications research has found that the general population remains unaware of 3G wireless technology, but you can get up to speed with our 3G wireless research page. Read our overview on the technology, and follow our links to publications, forums, mobile and fixed wireless resources. **DocFinder: 4939**

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The best of the NetFlash daily newsletter

Microsoft uses open source, despite critical stance

Microsoft has aggressively opposed open source software, and the company has argued that the words "free" and "software" just don't go together. However, that doesn't seem to have stopped Microsoft from using open source software when it needed it. For the past two years, Microsoft distributed a software tool covered by the GNU General Public License. **DocFinder: 4948**

Tablet-sized PCs are back

It's an idea that just won't die. PCs that lie somewhere between the ultracompactness of a PDA and the full functionality of a laptop were all over PC Expo show this week. Will they take hold this time? **DocFinder: 4949**

3Com hit hard by tech slowdown

3Com is the latest network vendor to reveal just how deep its financial wounds go. Revenue for the company's most recent quarter was $468 million, down from $763.7 million in the same quarter a year ago. Losses for the quarter, at $206 million, were worse than expected. **DocFinder: 4950**

Products extend corporate nets to handhelds

There's more activity than ever around wireless LANs. *Network World's* John Cox has the full story from PC Expo, profiling several wireless technologies introduced at the show. **DocFinder: 4951**

Wyly, CA fight gets uglier

Another chapter has been written in the saga between Computer Associates shareholder Sam Wyly and the company's management team. Both sides are now taking their cases public, as Wyly accuses the company's leaders of mismanagement and the managers shoot holes in Wyly's research. What do you think of this mess? **DocFinder: 4952**

— Jeff Caruso, managing editor, online news

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COLUMNISTS

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Troll trend

Fusion Executive Editor Adam Gaffin points to the growing trend of outsourcing programming . . . but not without its costs. **DocFinder: 4940**

Help Desk

Cheap VPN

Ron Nutter gives a user suggestions for a low-cost, small-business VPN solution. **DocFinder: 4941**

View from The Edge

On The Edge

Senior Editor Tim Greene comments on last month's most shocking networking news — Nortel's $19 billion loss in a single quarter. **DocFinder: 4942**

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NEWS BRIEFS, JULY 2, 2001

Linux vendors announce changes

Changes are afoot in the Linux vendor community. VA Linux announced last week that it is leaving the server and network-attached storage business and refocusing on application software. The company will lay off 135 people, 35% of its staff. The remaining employees will concentrate on remote management, Internet and NAS software, and its Slashdot, SourceForge.net and ThinkGeek Internet sites. Caldera will start per-seat pricing for its OpenLinux Workstation software, a practice that is common with Windows operating systems software, but new in open source applications. Finally, Red Hat will add consulting services to its lineup. Analysts say that move is a necessary adjunct to the company's recently announced Red Hat Database.

Flaw found in Oracle database

Network Associates' PGP Security division last week identified a security flaw in the Oracle database versions 8.1.5, 8.1.6, 8.1.7 and previous versions for Windows, Linux, Solaris, AIX, Hewlett-Packard-UX and Tru64 Linux. The flaw pertains to the so-called "Transparent Network Substrate Listener" in the database responsible for establishing and maintaining remote connections. The Oracle 8iListener is vulnerable to a buffer-overflow condition that allows remote execution of code on the database server under a security context that grants full control of the database services and in some cases the operating system, to the attacker. Oracle has produced a patch for the problem under bug No. 1489683 available for download at www.metalink.oracle.com.

Microsoft cans Smart Tags for XP

Microsoft has decided to drop the controversial Smart Tags feature from its forthcoming Windows XP release. The feature will not appear in the final version of the operating system, scheduled for release Oct. 25, or in the new Web browser Internet Explorer 6.0, a spokeswoman for the company said. The feature was eliminated "based on feedback we got in general from both partners and users," said Milo Schaap, a Microsoft product manager. The software giant has come under fire for the planned feature, which scans keywords in user documents and offers links to related Web sites, many of them operated by Microsoft entities or partners. Critics have accused Microsoft of trying to take advantage of its dominance in the operating system field to beat competitors in the Internet sphere.

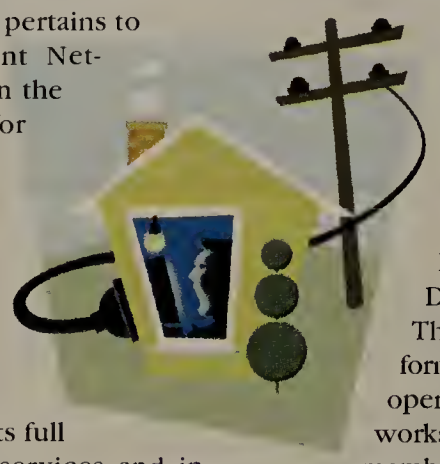
Nortel, Lucent land big Sprint deals

Sprint last week announced two $1 billion deals, tapping Nortel and Lucent to provide hardware and software for the buildout of its upgraded wireless network.

Sprint is setting up its 3G wireless service to bring faster Internet connection speeds to users and to make it more feasible to accomplish bandwidth-hungry tasks. Sprint expects to begin upgrading its PCS network with Nortel and Lucent products this year. Nortel and Lucent will receive close to $1 billion each over the next three years.

HomePlug Alliance releases spec

The HomePlug Powerline Alliance has released the first specification for powerline home networking, opening the door for the development of products that will let PCs and other information devices be connected via power outlets. The 14M bit/sec Ethernet-class specification was tested in more than 500 homes and nearly 10,000 wiring paths before its release. The field trials showed that the specification meets regulatory, interoperability, performance, noninterference, reliability, scalability, and diagnostic and maintenance prerequisites outlined in the HomePlug Market Requirements Document, the alliance says. The HomePlug Alliance was formed last year to create interoperable home powerline networks and products. It has 90 members, including Cisco, 3Com and Texas Instruments.



W3C unveils XML recommendations

The World Wide Web Consortium last week announced the publication of two W3C recommendations regarding XML, which are aimed at standardizing more features. The consortium recommended XML Linking Language (XLink), a method of creating and describing hyperlinks, that supports both traditional HTML and extended links. XLink lets XML authors add links that provide more functionality than traditional HTML links. The second recommendation by W3C concerned XML Base, a method that saves programmers from having to type a URL repeatedly into a document. By making a specific URL a "base" URL, programmers can insert it in a document using a shortened version.

Microsoft to loosen reins on .Net code, snubs Linux

BY JOHN FONTANA

With its promise to selectively release source code to key pieces of its .Net software, Microsoft is seeding the academic market with its technology and thumbing its nose at Linux and Java, observers say.

Microsoft said last week it will work with Corel to build "shared source" implementations of its C# (pronounced C-sharp) programming language and the common language infrastructure (CLI), which is comparable to a Java virtual machine. Microsoft invested $135 million in Corel last year, which rescued the company from near death.

The partnership is part of Microsoft's Shared Source Philosophy announced in May, which provides source code but retains Microsoft's intellectual property rights.

The implementations, which are for noncommercial use only, are designed for academic, research, debugging and learning purposes, and will be built for Windows and FreeBSD, a Berkeley Software Distribution Unix operating system for PCs. Beta version copies are expected in the first half of 2002, with shipment in the second half.

"In the advanced levels of academia this is huge because it takes leading edge stuff and makes it freely available," says Peter O'Kelly, an analyst with the Patricia Seybold Group. "Fundamentally, this is about helping academics get into Web services faster and will get a lot of people hammering on Microsoft code."

Microsoft officials also say they chose FreeBSD over Linux to avoid the General Public License, which governs sharing of code. Microsoft has long criticized open-source licensing.

CLI and C# are due for a vote before the full membership of the European Computer Manufacturers Association (ECMA) in December, Microsoft officials say. ECMA is the standards body that Sun targeted in its failed attempt to standardize Java.

Microsoft hopes that the source code will provide a sample of how to build to the ECMA standard if CLI and C# are approved.

"We want to give people help to build their own commercial implementations," says Tony Goodhew, product manager for shared source CLI at Microsoft.

But exactly what can be done with the source code is unknown because Microsoft did not release the wording for the noncommercial license.

Microsoft said it chose to include FreeBSD to prove that the CLI could be implemented on Unix. Some Linux advocates called it another attack on their operating system.

"They are trying to help the weakest competitor in the open source field," says Miguel de Icaza, CTO for Ximian, which is developing a graphical user interface Linux desktop. "In the long term, they want to compete against two divided platforms [Linux and FreeBSD] instead of just one Linux."

C# is the programming language built for the .Net framework, a set of technologies for running Web services, which are chunks of reusable code that can be stitched together. The CLI is a subset of the Common Language Runtime, which lets Web services written in any of 23 languages run on Windows. However, the CLI does not include key features such as Windows Forms for creating graphical user interface client interfaces, ADO.Net for database connections and ASP.Net for dynamic Web sites. ◪

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Palm revamps operating system, adds APIs

BY JOHN COX

NEW YORK — Palm is walking a tightrope between the success of its current operating system and the demands that new processors, applications and memory are making on it.

Several companies have turned to Microsoft PocketPC or Linux to power handheld devices, instead of using PalmOS. They're willing to pay the price in higher memory requirements to gain vital APIs and more powerful processing than Palm currently can offer.

Palm is responding with plans to shift a radically rebuilt operating system from the current Motorola Dragonball processor to the Intel ARM 7. "The operating system platform needs to support the level of functions and services that our developers require," says Alan Kessler, general manager of Palm's platform solutions group.

"The operating system kernel is not the issue [for developers]," he says. "It's the APIs and the programming model that are important."

Kessler declined to say when PalmOS would be available for the ARM 7 chip. Last December, at the PalmSource annual gathering, executives showed a prototype "breadboard" with the ARM 7 and a stitched-together PalmOS. Audience members were invited on stage to beam some of their applications, via the handheld's infrared port, to the breadboard, where they ran notably faster.

"You'll be able to beam an application written for the Dragonball to a Palm device with the ARM 7, and it will just run," Kessler says. A goal of the operating system project is to make use of existing applications without forcing developers to rewrite or recompile them.

But even before the completed operating system, Palm plans to release the first of a flock of new Palm APIs that will be part of the upcoming release. These will enable application developers to use new security and multimedia services without writing a lot of code.

Kessler likened the ARM-based operating system to switching a car's six-cylinder engine to an eight-cylinder one. Users will have more power and will be able to go faster, but the car will run essentially the same.

Part of Palm's plan is to create a next-generation operating system that its licensees would add to. "We'll have a modular, extensible system," Kessler says.

Palm added a number of APIs to PalmOS 4.0. One is a telephony API that lets applications dial a cell phone. Another is an interapplications API, which lets applications use each other. For example, an event in the calendar application could be e-mailed, or sent via Short Message Service, to another Palm user.

Part of the operating system project includes a memory protection scheme, so each application runs in its own protected area of memory, a technique that stops one malfunction from crashing the entire system. Another effort is creating a password that will turn on encryption, enabling the operating system to encrypt all data.

"You'll be able to beam an application written for the Dragonball to a Palm device with the ARM 7, and it will just run."

Alan Kessler, general manager, Palm

The operating system revamp comes in the face of a brutal fiscal-year report the company issued last week. Palm reported a loss of $356.5 million for the most recent fiscal year, or 63 cents per share.

The loss occurred even though revenue for the year ended June 1 was up 47% over fiscal year 2000, to $1.56 billion from $1.06 billion. In 2000, Palm reported a profit of $45.9 million, or nine cents per share.

Results for the fourth quarter were also dismal, or "challenging," as Palm executives put it. Revenue was just $165.3 million, compared with $350.2 million for the fourth quarter a year ago. Palm has been hit by reduced demand for its flagship products, as it brought out the new m500 models.

Palm CEO Carl Yankowski says the company will report a smaller loss in the first quarter, and return to profitability in the second quarter — that is, by year-end.

NextWave, FCC battle continues over wireless licenses

BY DENISE PAPPALARDO

Despite several rounds in court and a second auction that brought in a potential $17 billion in revenue for the federal government, it's still not clear who owns 216 Personal Communications Service wireless licenses.

Last month the U.S. Court of Appeals in Washington, D.C. reversed a previous ruling that stated the Federal Communications Commission acted within its rights in repossessing PCS licenses due to nonpayment. These PCS licenses were originally auctioned off in May through July 1996 bringing in more than $10 billion for the federal government.

But NextWave Personal Communications, one of the companies that had to return its licenses, sued the FCC claiming it was protected under bankruptcy laws. While the FCC won two previous court rulings, the Court of Appeals last week agreed with NextWave's point of view. But, since this case started nearly four years ago, there is no simple resolution.

In January the FCC reauctioned NextWave's 216 C-block PCS licenses along with 206 licenses that were returned to the FCC by companies that could no longer pay for them.

Big-name wireless providers such as Verizon, Cingular (BellSouth and SBC's joint venture), VoiceStream and an AT&T affiliate called Alaska Native bid billions on individual licenses (see chart).

Winning bidders may lose after all

The FCC auctioned 422 wireless licenses earlier this year that were returned after the original auction due to nonpayment. Two-hundred and sixteen licenses may now be returned to NextWave, one defaulter, even though others bid billions to buy them. Here's a sampling of how the auction ended in January.

Service provider	Cities covered	Investment
Alaska Native Wireless*	New York, Los Angeles	$2.9 billion
Cingular Wireless	Boston, Dallas, Los Angeles	$2.3 billion
Verizon Wireless	Boston, Philadelphia, Chicago, Los Angeles, San Francisco, Washington, D.C.	$8.8 billion
VoiceStream	San Antonio, Texas; Cleveland; Charleston, S.C.	$483 million

*Affiliated with AT&T Wireless

Some wireless providers planned to use this C-block spectrum to increase coverage in cities where they already offer services, says Eugene Signorini, an analyst at The Yankee Group. The delay won't cause immediate trouble for these companies or their customers, but could be problematic later as the service providers launch next-generation voice and data services.

Other companies such as Cingular, which was buying spectrum to expand its network into cities where it did not have coverage, will not be able to do so until the spectrum ownership issue is resolved, Signorini says. "The next auction, for the 700-MHz spectrum, isn't scheduled until September, and it's been postponed three times already."

An FCC spokeswoman says that 17 licenses from the reauction have been distributed, but none of these belonged to NextWave. While she declined to comment on the FCC's next step she implied it would take place in the courts.

Service providers such as Verizon Wireless are hoping for a quick resolution. Denny Strigl, the company's president and CEO, issued a written statement that says, "we are disappointed by the Court's decision. The FCC and NextWave need to settle this dispute in a way that permits the FCC's auction results to stand and this spectrum to be quickly deployed."

NextWave's fight is creating opportunities for other service providers, such as Metro PCS, which also defaulted on its payments and had to return its licenses. Late last week a court ruled that the 14 PCS licenses the service provider won in 1996 should be returned.

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COMPAQ
Inspiration Technology

Compaq taps Intel 64-bit server technology

BY APRIL JACOBS

In a series of moves made last week, Compaq committed to revamping its business and unifying its server family under a single chip technology that will be co-developed with Intel.

The most tangible move was a multiyear agreement that lets Intel license some of Compaq's key 64-bit Alpha chip technology to build more powerful servers. Compaq also said it plans to move its 64-bit server platform over to Intel's 64-bit processing architecture, with its first Itanium-based systems set for delivery in the third quarter of this year.

During the next couple of years, several hundred Compaq chip engineers with experience in Alpha compiler technology, as well as infrastructure employees, will be offered jobs at Intel.

Compaq is reportedly going to commit $500 million to acquisitions in the services arena — a move that would expand its offerings and help it compete with IBM's Global Services division.

Windows 2000 Advanced Server and Win 2000 Data Center — both intended for 64-bit hardware — will become viable options to big Unix boxes.

"What we like about this new [Itanium-based] architecture is it brings the Windows 2000 family into the realm of the midrange Unix systems," says Bob Janacek, CTO of CertifiedMail.com.

CertifiedMail uses Compaq servers and Intel-based network products from Compaq that used to be branded under Intel's NetStructure family and are now sold in an OEM capacity by Compaq and others.

"CertifiedMail does a lot of security — and part of that is encryption, managing certificates and the digital envelopes. All of that is very computationally intensive and [64-bit] is what people need — greater speed and memory capacity," Janacek says. "When we go into a big customer, like Blue Cross, their data center is a mix of Unix and Windows servers. The Unix boxes are currently the ones where the most horsepower is needed."

Compaq and Intel would not comment on the financial details of the agreement or how it would affect their balance sheets. Both companies are in a quiet period in anticipation of earnings announcements.

Jean Bozman, a research director at IDC, says Compaq's transition to Intel-based architecture could be a boon for it in the midrange market, because it's Tru64-based Unix systems rank fourth behind market leaders Sun, Hewlett-Packard and IBM. Compaq does about $1 billion per year in business based on those systems, compared with its competitors' $4 billion to $5 billion.

For Compaq end users, the move means they will be able to get everything from supercomputers to Web servers on a single Itanium-based processor.

At the June 24 press conference in New York where Intel and Compaq made their joint announcement, executives said they don't expect the development effort will cause any problems with the Federal Trade Commission because the system chips will be available for sale to all vendors in the server and appliance market.

Because Compaq doesn't plan to finish migrating 64-bit systems to the Itanium architecture until 2004, the company said it is committed to at least two performance upgrades before then for its highest-end Himalaya systems and other high-end 64-bit servers.

The new family of Compaq enterprise servers will support Tru64 Unix, Open VMS and the NonStop Kernel, which run its Himalaya systems. Compaq had planned to transition its Himalaya systems to Alpha, but that project will now be transitioned to Itanium.

They will support Win 2000 and Linux. The company said it will immediately begin to port Tru64 Unix, OpenVMS and NonStop Kernel operating systems and development tools to the Itanium processor family.

Compaq: ww.compaq.com

The digital connection

Alpha chip technology was only part of the package when Compaq bought Digital in 1998.

Product	Status
Digital network products	Sold to Cabletron Systems in 1997 (prior to formal merger).
Digital Alpha chip	Some fabrication plants taken over by Intel; current agreement calls for license of technology to Intel, as well as engineering expertise. As a result, Compaq will migrate all 64-bit server systems to Itanium by 2004.
Tandem Himalaya	Plan was that Himalaya would run on Alpha, but the strategy now is to migrate NonStop Kernel to Itanium.
Digital Services	Thousands of employees moved to Compaq.

NetScreen pushes firewall speed to 2G bit/sec

NetScreen 1000 enables managing one firewall as if it is many.

BY TIM GREENE

SUNNYVALE, CALIF. — NetScreen plans to boost the firewall speed of its NetScreen 1000 firewall/VPN appliance to 2G bit/sec so users can avoid installing multiple firewalls and traffic load balancers to protect busy corporate sites.

When it ships next month, a new switching card for NetScreen 1000 will double the current 1G bit/sec NetScreen 1000 firewall speed, giving users an added cushion against ever increasing traffic in and out of secure sites such as data centers. With NetScreen 1000, users can firewall these sites with a single device. The alternative would be using multiple firewalls with load balancers sitting between the firewalls and the Internet to distribute traffic among them, increasing the complexity of the network and the number of devices users have to manage.

Other vendors, including Cisco, Lucent, Nokia and SonicWall, claim 1G bit/sec speeds for their fastest firewalls (www.nwfusion.com, DocFinder: 4945).

In addition, NetScreen 1000 will be able to carve up the firewall to act as if it is up to 250 individual firewalls, each with its own set of policies. Without this capability, users are forced to use multiple firewalls if they want to impose different policies for different groups of users.

Previously, the device supported 100 of these separate security domains, called Virtual Systems. That has been increased with the latest version of NetScreen's operating system, Screen OS. Virtual Systems extend to VPN policies as well.

The NetScreen 1000 firewall/VPN appliance features a top firewall speed of 2G bit/sec and can manage 250 separate firewalls.

In a service provider setting, this feature could give companies control of these policies at a lower cost to the service provider, says Steve Koinm, vice president of strategic technology for Solid Systems in Houston, which runs data centers where corporations can house gear and lease storage capacity.

Users will be able to buy Virtual System licenses in packages of five, 25, 50, 100 and 250. This allows users to buy the feature without paying for more than they need, says John Lawler, an analyst for Infonetics.

For all the speed of the firewall, the speed of VPN encryption on NetScreen 1000 will remain 1G bit/sec. The processing of VPN packets is done by processors separate from the firewall switching hardware, and these VPN cards have not been upgraded.

"This is disappointing, because you generally don't want to have to worry that different features run at different speeds on the same device," Lawler says. NetScreen says users will have more data center traffic they want to screen with a firewall than they will traffic they want tunneled through a VPN.

NetScreen says it has not set a price for the firewall switching card. The Screen OS upgrade that enables up to 250 virtual systems will be available in the fourth quarter. Prices vary depending on the number of virtual systems, but a NetScreen 1000 with 25 virtual systems costs $100,000.

NetScreen: www.netscreen.com

Correction

The story "All Optical transistors could upend computing" (June 25, page 38), should have listed the company name as All Optical Networks. Its Web address is www.alloptical.net.

Servers

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FOUNDRY NETWORKS

Novell,
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in management and what's going on," a company spokesman says.

Customers say they are anxious to hear those details. DiComo manages a global network that uses Novell Directory Services (NDS) eDirectory, NetWare 5 and the Novell Internet Messaging System. He'll upgrade to Novell's symmetrical multiprocessing version NetWare 6 when it ships in September and is using the Web-enabled Novell Portal Services.

"It concerns me because there is still a need to improve, enhance and grow these products," he says. "The installed market share is still pretty strong and Novell should look to retain this by keeping development alive. I'm not the only one hoping they can pull it off."

Novell posted net losses totaling $159 million during the first two quarters of this year, whereas for the full fiscal year prior to that period the company reported income of $76 million. Last September Novell laid off 900 employees — 16% of its workforce — and in May cut an additional 5%. With the acquisition of CTP, Novell will have about 7,900 employees.

As Day One approaches, Novell employees are said to be working on existing projects and waiting to see what happens. Some have been notified they will be laid off when they finish projects the company deems critical, a Novell source says. "A sense of inertia exists, and it's difficult to get the attention of management," the source says.

Layoffs last fall and in May have affected development and support, says a Novell partner who asked not to be identified.

'Hacking into bone'

"It's as if [the company] is hacking into bone now and amputating limbs, not just cutting into muscle," he says.

Product housecleaning has already begun.

In recent months, products including digitalme, Schemax, NetWare for SAA and Novell Distributed Print Services have been discontinued; others, such as GroupWise 5.5, have been placed in maintenance phase, in which only critical defects will be fixed because newer versions have shipped. GroupWise 6, which has wireless features for portable devices, shipped April 16. Consultants who were selling the company's next-generation iChain authentication and access control product were let go.

Development, maintenance and support for several projects — the IP stack, cross-platform products and client software — have been moved to Novell's offices in India, sources say. Other products, such as BorderManager Authentication Services and Novell's FireWALL for NT, are no longer shipping. In some cases, these products have no Novell replacements other than the Excelerator caching appliance from the company's Volera subsidiary.

Novell's attempt to rebound is being complicated by its two divergent product lines, say users and analysts.

On one hand, the company has legacy products such as NetWare, GroupWise and ZENworks that produce most of its revenue. On the other side of the house — but still not capable of sustaining the company — are Web-enabled next-generation products such as OnDemand, iChain, NDS eDirectory and Novell Portal Services.

"You have two parts of the company," says Rocco Esposito, CTO of window treatment manufacturer Hunter-Douglas in Upper Saddle River, N.J. "You have stuff that's packaged like NetWare and GroupWise that an administrator can install and get to work. And you have products such as DirXML and NDS eDirectory, which are really application development, and take far beyond the administrator's capability to plan and build."

While Novell admits that sales of packaged products to small and midsize businesses have steadily declined for the past year, site license sales to large companies have increased. Steve Shepich of H&R Block Financial Advisors in Detroit says site licenses sold to enterprise customers in the first quarter of this year accounted for 79%, or $190 million, of Novell's revenue, compared with 72% last year.

"If Novell concentrates on the large enterprise, continues to support and upgrade its legacy products, and then up-sell them to newer Web-enabled services, the company has a chance of success," Shepich says. "It's going to be difficult to do, however, for a company with an ineffective marketing organization in an increasingly more competitive services business."

Most of Novell's new products require support and consulting services to design, implement, configure and install, playing well into its plans to bring 3,400 CTP consultants into its fold.

Legacy products also need support but may face limited development with Messman's arrival. The next version of the company's operating system, NetWare 6, will ship this fall, but Novell has delayed a 64-bit version of NetWare until after Intel's McKinley processor ships next year.

"Novell doesn't understand that the business it has been in all along is services — file services, not operating systems," says Craig Burton, a Novell co-founder and former senior vice president. "Although Jack Messman shows good leadership and sensibility, I don't know whether he can do a better job recognizing that than the last three CEOs. Trying to mix those [product and services] businesses doesn't work." ◪

Get more information online.
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www.nwfusion.com

End of the line

Recently Novell has discontinued several products. More may follow after the Novell/Cambridge Technology Partners merger.

Product	Replaced with	What they do
BorderManager Authentication Services	Volera Excelerator	Caching, authentication, access
Digitalme	Discontinued	Digital identity
FireWALL for NT	Discontinued	Access security
GroupWise 5.5	GroupWise 6	E-mail and collaboration
NetWare for SAA	Discontinued	Mainframe access
Novell Distributed Print Services	NetWare 5.1	Printing
Schemax	NetWare 5.1	NDS configuration tool

SCHMIDT TALKS OF SUCCESSES, FAILURES

Outgoing Novell CEO Eric Schmidt officially relinquishes the helm next week to take a less active role as chairman of the board. Schmidt arrived at Novell in April 1997 with a mandate to turn around a suddenly struggling software giant, and while there were initial successes, he steps aside with the company reeling from financial difficulties and layoffs. Schmidt shared these thoughts last week with Network World *Senior Editor Deni Connor.*

Will you take an active role in the company's strategy and direction as chairman? Or will you defer that to incoming CEO Jack Messman?

I hope to work on the technology strategy for Novell and help there. The overall direction and strategy for Novell will be Jack's. My value-add will be in underlying technology trends.

More than a year ago when we talked, you said things at Novell had gone pretty well. Now, how do you think Novell should have acted in hindsight?

In hindsight, the channel issues we faced after the Year 2000 [date problem] bubble were a surprise to me and I should have seen this coming. I didn't. It has taken longer than I expected to work through them — about a year! It has taken longer to build the sales and solutions capacity for the directory strategy than I expected. This is why we did the merger with Cambridge Technology Partners and I am now satisfied we have handled this.

Hindsight is always 20-20 as Eric Schmidt looks back at what regrets he has at the helm of Novell.

What do you regret in your leadership in Novell? How do you think Jack Messman can improve on that?

Jack is a much better businessman than I will ever be. He is more focused on the bottom line, more focused on revenue growth, more focused on the internal processes of the company that create revenue and profits.

In retrospect, I wish I had seen the channel issues sooner. The requirements needed to run a 7,900-person product-and-solutions company that Novell is becoming are all Jack's strength.

What are you proudest of in your leadership of Novell?

The initial turnaround, the success of NetWare 5 and NDS eDirectory, and the One Net strategy culminating in the merger with Cambridge Technology Partners. ◪

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FOUNDRY NETWORKS

B2B,
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marketplaces, the WorldWide Retail Exchange (WWRE). Storch, who made his remarks during his keynote address at the annual Retail Systems Expo conference last week, vowed to work to bring WWRE together with competitors GlobalNetExchange (GNX) and Transora to gain efficiencies of scale and interoperability.

While analysts say the idea makes sense for the retailing industry, executives from GNX and Transora weren't enthusiastic. "At this point, it would be like joining Procter & Gamble and Kroger," said Johan Sauer, lead for sell-side services at Transora. There would be antitrust issues as well as personnel, shareholder and technology questions in combining the exchanges.

One thing that WWRE, Transora and GNX already have in common is a certain buyer's remorse for the marketplace software in which they have invested upward of $500 million in total.

"We're on track to spend half a billion dollars on this as an industry and not have many results to show for it," Storch said during his keynote address. "We need standards and cooperation in an economic period like the one we're in."

A year ago, "in the euphoric era of get rich quick," Storch noted, the largest retailing industry players raced to set up comparable software-based exchanges by signing up software vendors and systems integrators (see graphic) to build elaborate systems.

Vendors, including i2 Technologies, Ariba and Oracle, last year promised to customize their core marketplace and supply-chain software packages to support functions such as many-to-many transactions, catalogs, inventory and transportation management, financial services, online auctions, forecasting and planning.

Even though GNX has spent almost $80 million, Transora has spent $180 million, and WWRE has spent $55 million for what they thought would buy them this shopping list of functionality, there's little other than online auctions available on their sites. Everything else is still under development, and the meter is running. Transora is still only in the pilot stage.

The three exchanges are all starting to add what's called collaborative planning, forecasting and replenishment (CPFR) software from vendors Manugistics, i2 and Syncra. These packages let suppliers and buyers closely share the sales forecast and manufacturing data from their back-end systems in order to make quick decisions on inventory management, wholesale purchase and shipment.

But because the CPFR software isn't interoperable, suppliers would have to deploy more than one software package inside their corporate networks to properly make use of CPFR on the business-to-business exchanges. The Voluntary Interindustry Commerce Standards Association, supported by the retailing industry, is working on a CPFR data-format standard under what it calls its Global Congress Initiative, but CPFR interoperability is still in the early stages.

Other standards-based efforts include the UCCnet, a not-for-profit subsidiary of the Uniform Code Council, which has established XML-based data formats for products and has a network-based service for compliance checking.

At the Retail Systems Expo, Storch said "it's time to come out of the jungle" and have the exchanges come together, even if it means they "all go out of business and they have to start over." Storch said he would make it his mission to get the retailing industry together for a common business-to-business exchange. But he acknowledged that with "careers now tied up in this as executives quit their jobs to join the new economy," the competing exchanges might not disband so easily.

Indeed, executives from Transora and GNX, in a panel discussion on exchanges, said they weren't ready to call a truce yet.

Like Transora's Sauer, Bharat Popat, vice president of product management at GNX, said he wasn't inclined to buy into Storch's idea to "build the common racetrack."

> ***"We're on track to spend a half a billion dollars on this as an industry and not have many results to show for it."***
>
> Gerald Storch, chairman, WorldWide Retail Exchange

Stars in their eyes

But there is common sentiment at GNX, Transora and WWRE that the software vendors they hired to build these separate exchanges all oversold their software's capabilities to a starry-eyed retailing industry that questioned it too little and too late.

"The technology vendors did overpromise what could be delivered in collaborative applications," Popat said. "They didn't exist then and they don't exist today. We're still working on them."

"The maturity of many of these technologies is not there for many-to-many, in the way as it is for one-to-many," Transora's Sauer said. The exchanges are paying to develop them in a kind of "trickle-down maturity effect," he pointed out.

Building the business-to-business exchanges has been a "rocky road," according to i2 Technologies, the vendor for WWRE and Transora.

"Going back a year ago to look at the euphoria that was going on, I understand why there would be a sense of frustration now," says Peter Krainik, i2's global vice president of business development for the consumer goods industry.

Ten months ago Krainik joined i2 from M&M Mars, where he was the e-business officer. Retailing executives were faced with the unprecedented situation of organizing the retail exchanges. Both the vendors and the exchanges all "went through a learning curve" in terms of their planning for the exchanges, Krainik says. The software was "evolving" as changes were made, so "deadlines were missed."

As CPFR starts to be deployed on the exchanges (i2 is supplying it for WWRE), the issue now is the back-end integration work needed behind the firewall to automate data sharing with the exchange. There's no advantage in using CPFR if the process isn't automated through data sharing, Krainik notes.

Other vendors say technology isn't as much of a problem as the tendency to keep changing business practices.

"[Exchanges and participants] set high expectations about what they wanted delivered from a business perspective [and] they magically thought marketplaces would solve battles they were having for years" to connect buyers and suppliers, says Ariba executive Martin Boyd.

The participants need to figure out why they want to be involved in marketplaces and the value proposition but at the same time change their business process. "It's not a technology problem, it's a problem of changing their business process," he adds.

In retrospect, in the midst of the euphoria over business-to-business exchanges, the expensive software wasn't a hard sell. Transora, GNX and WWRE acknowledge they probably could have been more critical and realistic in terms of the software purchase and their vendor expectations.

Some analysts think the retailing industry should carefully entertain the notion of consolidating for the sake of efficiency and interoperability, though barriers — such as prior investment commitments and the question of future management — exist at this point.

But the future of the competing exchanges for the retailing industry's buyers and sellers looks cloudy to some analysts.

"It does sound like we're starting to have a biblical Tower of Babel," commented Greg Girard, vice president of retail application strategies at AMR Research, who moderated the panel discussion.

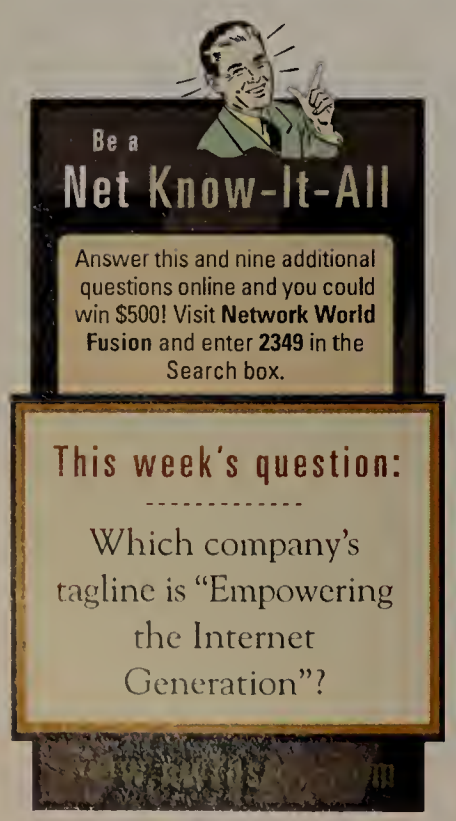
He also noted that some of the exchange founders, such as Procter & Gamble, maintain their own private business-to-business-oriented networks for e-commerce with their suppliers. Procter & Gamble just licensed i2's order-management application for itself, casting doubt on their commitment to using business-to-business exchanges.

For the retailing industry, last year's money put into business-to-business exchanges may have been just a "hedge," Girard concluded. "The 2001 [business-to-business] money is going elsewhere." ◪

Costly competition

The three retailing B2B exchanges have spent an estimated half-billion dollars but have achieved little in the way of marketplace services. Gerald Storch, vice chairman of Target and chair of the WorldWide Retail Exchange, advocates combining the three exchanges or even starting from scratch to have one retail industry exchange.

	Participants	Technology providers
GlobalNetExchange (GNX)	Eight equity members, including Carrefour, Kroger and Sears, Roebuck.	Oracle, Manugistics
Transora	Fifty-eight manufacturers, including Coca-Cola North America, Hershey Foods and Reckitt Benckiser.	i2, Ariba, Syncra, Accenture, PricewaterhouseCoopers
WorldWide Retail Exchange	Fifty-three retail companies in the grocery, drug and apparel businesses, including Safeway, Bristol-Myers Squibb and Liz Claiborne.	i2, Ariba, IBM



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Antitrust Act, including a 1998 ruling that concluded the union of Windows 95 and Internet Explorer was "a genuine integration."

"This is a big open gate for Microsoft to do more .Net integration with the desktop and components," says John Enck, an analyst with Gartner.

Of course, critics say the latest ruling will only make Microsoft more aggressive.

But it's also an open door for competitors such as Sun, Oracle, AOL Time Warner, IBM, Hewlett-Packard and others to more tightly integrate their products into single platforms.

"Aggressive vendors could be a downside in all this," says Jeff Allred, manager of network services for the Duke University Cancer Center. "But I think some vendors will have to be careful. Microsoft has a base [operating system] and things added to that can be argued to be features of the [operating system]. IBM and others can't do that because they don't have the [operating system]."

But the definition of an operating system is changing in the wake of the industry buzz around Web services, chunks of reusable code that can be stitched together into complex applications. The focus is away from desktop applications and shining on delivering Web services software over the Internet.

The major vendors are rushing to develop application servers as the foundation for executing Web services, in essence using those platforms as an operating system to provide services to Web service applications.

"Look at the application server [arena]," says Dwight Davis, an analyst with Summit Strategies. "IBM, BEA, Sun/iPlanet, they all have application server engines and they are all expanding them into e-business platforms. The app server is the foundation and the things being added are such things as wireless support, corporate portals, business intelligence and process management. They are all trying to differentiate themselves because at the server level, they are all the same [Java 2 Enterprise Edition]."

Davis says these vendors are already being aggressive, it's just that Microsoft gets the bulk of the attention especially as its antitrust trial has dragged on the past three years.

In last week's ruling, the court said Microsoft is an illegal monopoly based on contracts it made with OEMs, independent software vendors and others. But the ruling clearly states that where Microsoft was alleged to have tied its products together, the government still needs to prove the benefits are outweighed by the harms.

It's a clear signal to Microsoft and its competitors, legal experts say, that it will take a pile of damning evidence to prove in court that integration is bad for consumers, including enterprise customers.

> ***"The real impact for corporations is that dominant technology companies have less reason to fear repercussions for their product development decisions."***
>
> Hillard Sterling, senior litigator, Gordon & Glickson

"The real impact for corporations is that dominant technology companies have less reason to fear repercussions for their product development decisions," says Hillard Sterling, senior litigator for Chicago law firm Gordon & Glickson. "It will be much more difficult for plaintiffs to prove tying in software products."

Tying is defined as a situation in which a buyer must purchase one product in order to get another, which is a violation of Section 1 of the Sherman Act. The government claims Microsoft did that with Windows 95 and Internet Explorer; Microsoft called it innovation.

"The name of the game will be services," says Kurt Schlegel, an analyst with the Meta Group. ".Net, IBM, Sun and other vendors will all build similar platforms with portals and personal interfaces." And, he says, the court's ruling means the government will have less of an impact in regulating all their integration.

"The tendency of vendors is to want to provide everything, to sell the pieces of the platform. Is that tying or is that giving the customer what he wants?" asks Jim Balderston, an analyst with Zona Research. Balderston argues that what IT wants is integration. And with the Appeals Court ruling they may get it in spades.

"I don't know about [the vendors] being more aggressive," says an IT consultant at a Toronto bank, who requested anonymity. "It has been business as usual. But I know that we are getting more aggressive and making them work harder to win our business."

That may be the best thing IT executives can do.

"Vendors are now free to do innovation and let the marketplace decide what it wants," says Steve DelBianco, vice president of the Association of Competitive Technology, an advocacy group for restricting government intervention into the IT industry. ◪

A long road

Recent milestones in Microsoft's trial

June 2000
Judge Thomas Penfield Jackson follows the recommendation of the DOJ and 17 of 19 state attorneys general who are plaintiffs in the case, ordering the breakup of Microsoft into two separate companies — one focused on operating systems and one on all other applications. He further orders behavioral remedies, which are "stayed" pending the expected legal appeal by Microsoft. The company appeals the ruling soon thereafter.

AP PHOTO/RIC FELD

July 2000
Microsoft hires attorney Carter Phillips and his Washington, D.C., law firm Sidley & Austin, which has experience with the Supreme Court. The company files court documents urging the Supreme Court reject hearing the appeal directly, contending it would place an "undue burden" on the court to have to review the extensive trial record before an appeals court hears the case, whittling possible issues for the higher court's consideration.

November 2000
In a brief filed with the U.S. Court of Appeals, Microsoft blasts Jackson's breakup ruling, arguing he misunderstood the antitrust issues involved.

AP PHOTO/MARTY LEDERHANDLER

January 2001
The Project to Promote Competition in the Digital Age, or ProComp, an anti-Microsoft group, hires former Special Prosecutor Kenneth Starr. The group, as well as AOL Time Warner and other anti-Microsoft trade groups, file friend-of-the-court briefs supporting the plan to break Microsoft in two. A lengthy article in the *The New Yorker* about the case quotes Jackson, who compares Microsoft Chairman Bill Gates to Napoleon.

June 2001
The U.S. Court of Appeals rules that Jackson violated judicial codes of conduct by granting "secret interviews" with journalists in which he offered his opinions about the case while the lawsuit was still pending, tosses out his order to break up the company and sends the issue of remedies back to the district court. The appeals court upholds Jackson's finding that Microsoft is a monopoly and has used that power to engage in anticompetitive behavior, including illegal licensing deals and predatory pricing, but sends the issue of "tying" back to the lower court for reconsideration.

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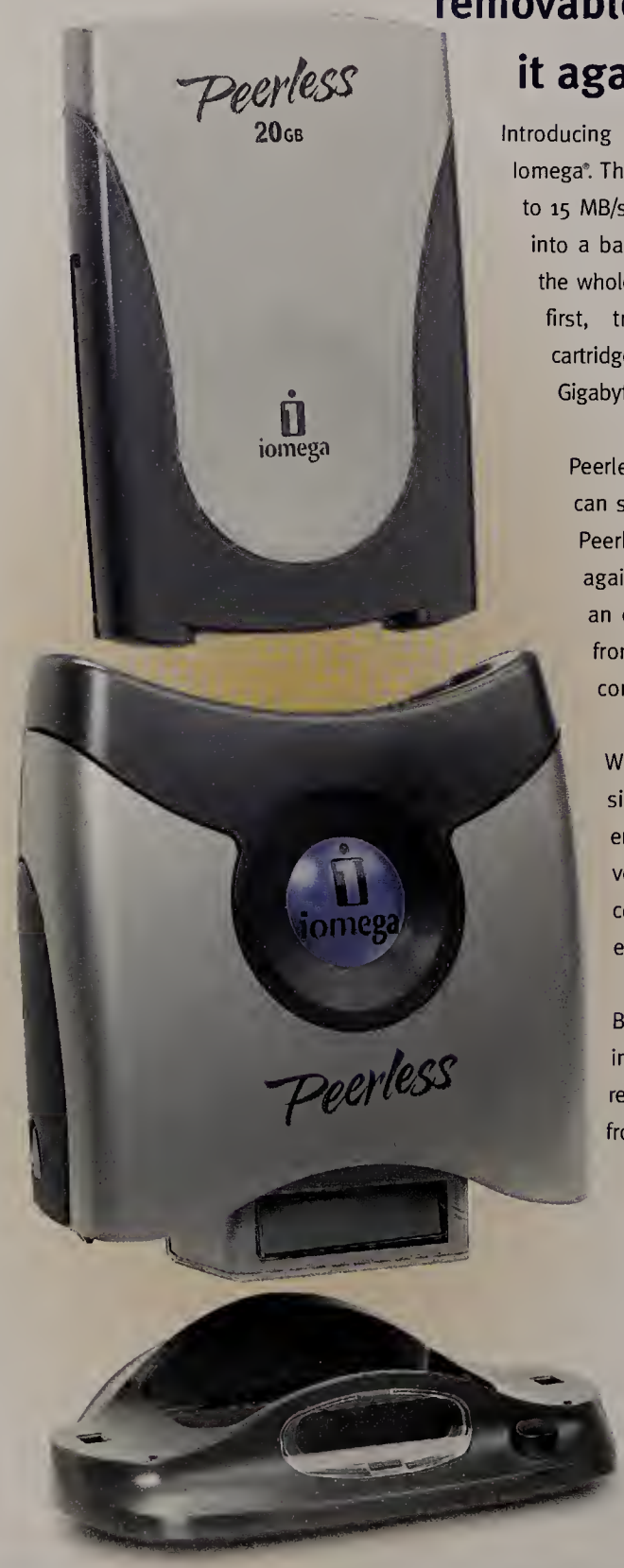

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Zip®250 $149.95***	•	•	•	•	•	•
Zip®250 Bay Tray $229.95	•					
FotoShow™ $199.95***					•	
Predator™ CD-RW $199.95***	•				•	•
Microdrive™ PC Card $249.95*		•				
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Pocket Zip™ $99.95*			40MB capacity 0.6MB/second						
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Zip®100 $79.95***				Up to 100MB capacity Up to 1.4MB/second					
Zip®250 $149.95***				Up to 100MB capacity Up to 2.4MB/second	Up to 250MB capacity Up to 2.4MB/second				
Zip®250 Bay Tray $229.95				Up to 100MB capacity Up to 2.4MB/second	Up to 250MB capacity Up to 2.4MB/second				
FotoShow™ $199.95***	64MB†	128MB†	1GB†	100MB	250MB				
Predator™ CD-RW $199.95***						700MB capacity Up to 1.2MB/second (write speed) 700MB			
Microdrive™ PC Card $249.95*							New Up to 1GB capacity Up to 7.5MB/second 340MB 1GB		
Jaz®2GB $349.95								Up to 2GB capacity Up to 8.0MB/second 1GB 2GB	
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Infrastructure

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Briefs

Dell last week announced a software partnership with Inktomi that effectively turns some Dell servers into caching appliances. Dell will make Inktomi's Traffic Server Engine software available on its PowerEdge 1550 and PowerEdge 2550 servers. Dell will begin selling the products immediately under the PowerApp cache-Inktomi Edition appliance server label. The 1U (1.75 inches) 1550-based appliance is priced from $4,500, and pricing for the 2U (3.5 inches) 2550-based product begins at $8,500. Dell will also include its OpenManage Kick-Start Utility software tool, which helps users configure network settings over any computer with a Java-enabled browser.

Dell: www.dell.com; Inktomi: www.inktomi.com

Stratus last week took the first step in a major product transition, releasing its Windows-based server, using the company's signature technology for avoiding hardware failures. Stratus until now has sold mostly high-end servers based on Hewlett-Packard's PA-RISC chips and running either its own VOS operating system or HP's Unix variant HP-UX. Stratus launched a low-end system called ftServer 5200 that uses Pentium III processors from Intel and Windows 2000. The Maynard, Mass., company expects customers to use these systems to beef up the availability of their e-mail systems or other key productivity applications such as Lotus Notes. Organizations that have signed up to use the systems include France Telecom, Nasdaq and Toshiba, according to Stratus. The company will start shipping one-way and two-way symmetric multiprocessing servers with Intel's Pentium III Xeon running at 750 MHz, starting at $28,296.

Stratus: www.stratus.com

IN-SITE: *Lessons from Leading Users*

U.S. military sees its future in wireless

BY ELLEN MESSMER

The U.S. military has long used proprietary private radio equipment, but the Pentagon now wants to put off-the-shelf wireless voice and data technologies in the hands of American soldiers as well.

To that end, the military has begun large-scale purchases — in the millions of dollars — of wireless LANs, cellular PCS systems as well as customized voice and data handsets for use with commercial and military wireless services.

The "Universal Handset," as the Pentagon calls it, will be a 1.5-pound device intended to do it all: cellular and mobile satellite communications for voice, Internet access and full-motion video; short-distance data exchange via the Bluetooth wireless protocol; plus as an option for operating in a peer-to-peer mode for group services on a LAN.

AT&T and Qualcomm are the contractors for the handset, which is expected to be delivered to the military next year. Its prototype looks like a lightweight computer notepad with a phone.

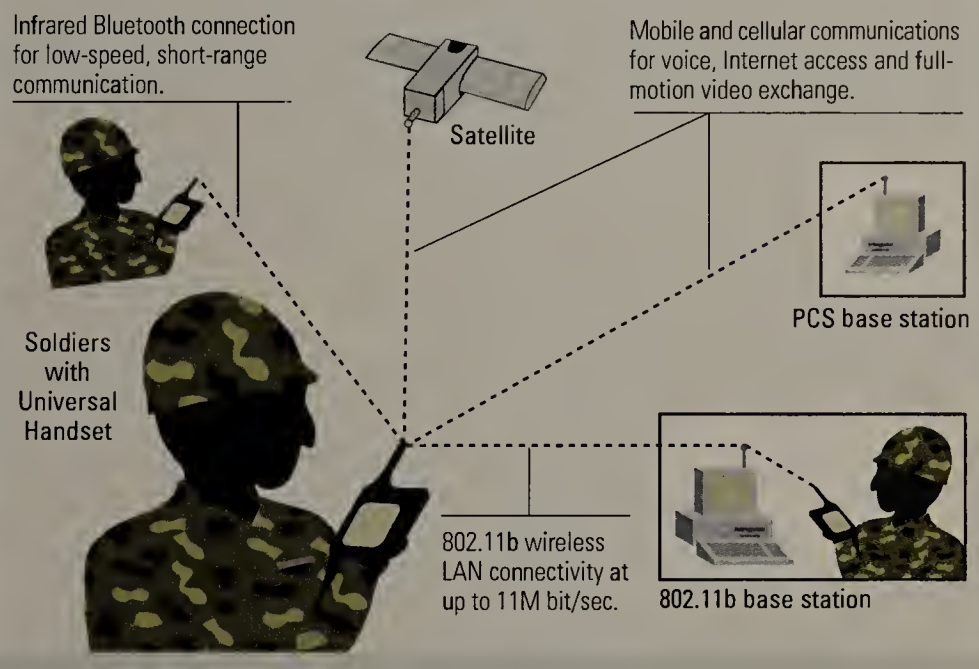
"The military needs more ad hoc networks, more mobile ones," said Ed Erskine, the Army's PCS program manager at Fort Monmouth, N.J., speaking at a recent Washington, D.C., conference on wireless. "The problem is commercial requirements are completely different from our military requirements."

The military will require that the Code Division Multiple Access-based PCS system supplied by AT&T and Qualcomm use encryption and other

See **Wireless**, page 18

Universal Handset

AT&T and Qualcomm plan to supply the U.S. military with a lightweight computer notepad with a phone, dubbed the Universal Handset. The 1.5-pound device is designed to give military personnel a variety of wireless access options.



WatchGuard locks down Microsoft Web servers

AppLock/Web software keeps corporate data safe from hackers.

BY TIM GREENE

SEATTLE — WatchGuard this week is introducing a security tool that automatically locks content on corporate Web servers so intruders can't alter Web page content or steal data such as customer credit card numbers.

Called AppLock/Web, the software automatically locks the servers' operating systems as well as a standard set of about 200 types of content typically found on Web servers. The intent is to keep hackers from tinkering with Web content even if intruders gain root access to the servers.

Once AppLock/Web is installed on each Web server, they can be unlocked only by a user who gains access via password authentication in conjunction with public-key encryption.

"This is a software switch. It shuts down administration of the server to anyone but the administrative users," says Chris Christiansen, an analyst with market research firm IDC.

Administrative access is protected by a password that requires a third party to authenticate the user. AppLock/Web uses no default password. "It's very unlikely that someone could break it,"

See **WatchGuard**, page 18

www.nwfusion.com
FINDING FLAWS
Read about another security hole in Microsoft's Internet Information Server and follow our links for breaking security news.
DocFinder 4929
find it online

Wired Windows . Dave Kearns

SPAM REBEL WITH A CAUSE

If you've recently sent me e-mail expecting a reply, and you didn't get one, a possible reason is that your mail host is blocking my mail server.

Yes, it seems that my domain, vquill.com, has shown up on the self-proclaimed Mail Abuse Prevention System Realtime Blackhole List (MAPS RBL). MAPS, of Redwood City, Calif. — why are there so many kooks in Redwood City? — claims to provide ". . . spam prevention resources to Internet computer systems administrators and end users." They do this by selling subscriptions to the RBL. The RBL is described as ". . . a system for creating intentional network outages for the purpose of limiting the transport of known-to-be-unwanted mass e-mail." That is, it's a list of sites you should block.

According to MAPS, the RBL only lists "IP addresses that are known to have generated spam or unsolicited commercial e-mail, or provide spam support services." Vquill.com and its IP address of 206.67.53.143 have never done either of these things. I don't send spam, I don't support spam, and I don't condone spam. Yet my site is listed by the cyber-zealots at MAPS.

Why, you may ask — and I did. It turns out that MAPS is having a dispute with the service which hosts my Web server, my Internet Presence Provider, Media3.net (www.media3.net). I've been a customer of theirs for more than four years, with very little trouble. Media3 hosts more than 1,200 Web sites and does so very well.

Checking MAPS' reference at http://maps.vix.com/cgi-bin/show_listing.cgi?115723, I find that someone named Steve Linford at The Spamhaus Project complained that Media3 had blocked his incessant e-mails to their abuse site. Linford wanted to complain about legitimate, legal businesses using Web servers at Media3 to sell products. Because Media3 wouldn't throw out these so-called "spam supporters," Linford asked his buddies at MAPS to block hundreds of Media3-administered Web sites. MAPS agreed, and vquill.com was subsequently blocked.

An exchange of e-mail with MAPS brought the suggestion that I switch providers. I'm sorry, but I've never been one to give in to blackmail.

Find out if your mail provider is using the RBL services of the cyber-goons at MAPS, and if so — protest loudly. Don't let someone else decide what mail you can or cannot receive. And let MAPS know (at rbl@mailabuse.org) exactly what you think of storm trooper tactics.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

Tip of The Week

For another writer's perspective on MAPS and the RBL, see "The day I was blacklisted" by Alex Sandell (www.juicycerebellum.com/iverson.htm). Warning, strong language and sophomoric wit!

JAMMING, MILITARY STYLE

Given its plans to embrace more wireless network technologies, the military is doing lots of upfront research.

To address concerns about the jamming or interfering with wireless network signals, some long-term research sponsored by the Defense Advanced Research Projects Agency (DARPA) promises to foster new software-based methodologies for converting radio-based signals instantly from one radio frequency to another.

"It's at least five years out," said Bill Jeffery, deputy director at DARPA, speaking at a recent conference. But he said research is proving it's possible to have a software-based radio that can use an antenna to "sniff the frequency" and then convert to the available frequency to transmit voice or data communications.

In other research, the military is interested in developing wireless voice-over-IP technology that would let soldiers request supplies by speaking to a wireless device.

— Ellen Messmer

Wireless,
continued from page 17

security features defined by the National Security Agency through its secretive "Condor" program.

The military also wants to be able to set up and tear down its PCS network quickly and transport it by plane or ship in the U.S. or around the world. Commercial PCS networks consist of stationary, preconfigured base stations owned by service providers.

The Pentagon is going to buy full-scale PCS mobile network systems, base stations and all, that will have network autoconfiguration, mobile address management and multicast routing. Early versions of this "deployable PCS network" were flown to Italy to test in rescue operations, according to Erskine. "The basic building block is the commercial cell phone," he said.

Landline networks will remain the communications backbone for the military, which is slowly replacing a mix of proprietary systems with IP-based routers and switches, mostly from Cisco, says U.S. Army Major General Steven Boutelle, program executive officer for command, control and communications.

Where the landline network won't reach, the military wants to deploy 802.11b commercial wireless LANs, which run at up to 11M bit/sec in the 2.4GHz microwave band and will feature satellite uplinks.

The military, which has been testing wireless LANs, hopes to award a contract by next spring to a vendor for wireless LANs that will support up to 300,000 soldiers .

While the military is interested in handheld devices such as Palms, too, Boutelle said major purchases of such devices aren't likely until the Army selects specific biometric authentication technologies, which are now undergoing testing at a laboratory in West Virginia.

The goal, although still far off, is interoperable wireless on the ground and in the air that will work with allies' wireless gear as well.

"If you think of the F-15 [airplane] as a node in the network, you'll have the right reference for wireless technologies," said U.S. Air Force Brigadier General Bud Bell during a recent presentation.

There are, of course, downsides to using wireless networks, including the fact that some can be subject to jamming or interference. Also, outside the U.S., the military will need to get permission at times to operate on certain frequencies.

"This is not a trivial problem," Bell said. ◪

WatchGuard,
continued from page 17

Christiansen says.

This product has no direct competitors, he says, but it falls under the general category of Web server security. As such, it could coexist on the same server with other security software such as intrusion detection, Christiansen notes.

AppLock/Web is an automated version of WatchGuard's earlier software called ServerLock, which performs the same functions but requires administrators to specify the content to be protected. AppLock/Web is aimed at companies that don't have dedicated security staff or don't want to manually configure each Web server, according to WatchGuard. However, AppLock/Web can be customized to add or delete security rules that are outside the default settings.

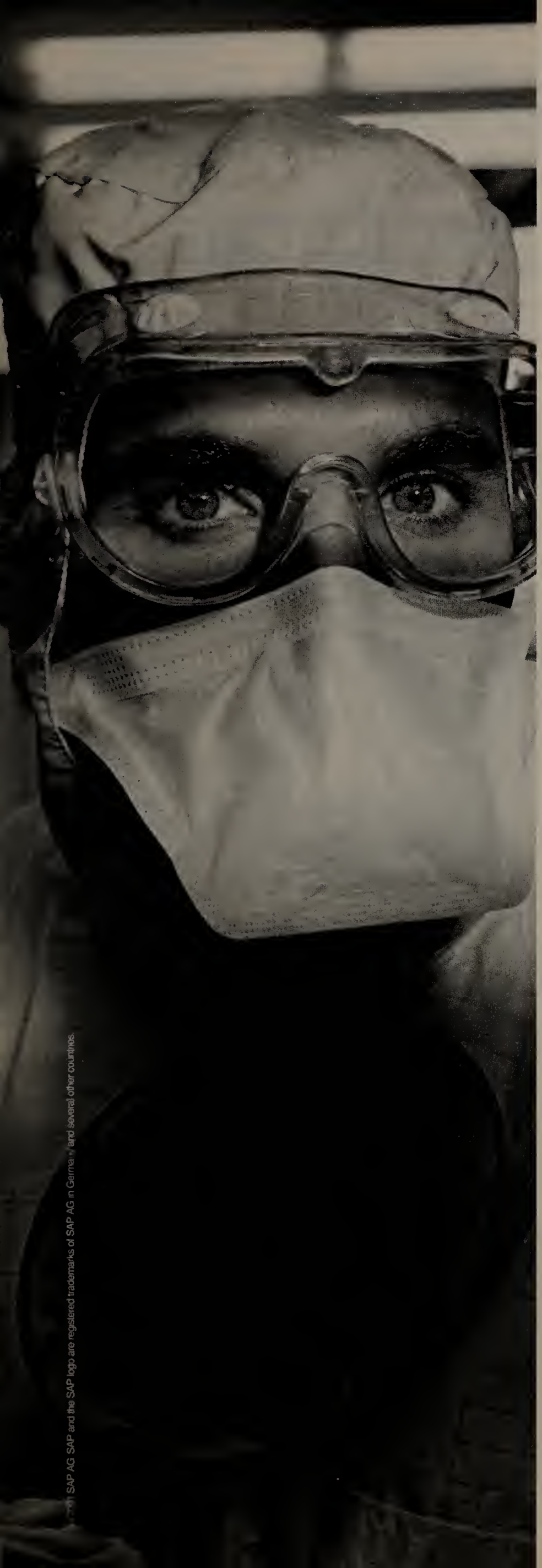
Whereas other security measures such as intrusion detection trigger alarms when attackers try to access servers, AppLock/Web renders the servers inaccessible, says Jack Danahy, WatchGuard's senior vice president for server security.

AppLock/Web supports Windows NT and 2000 servers running Internet Information Server, the Web-server software integrated into the two operating systems. Security breaches to such software should be considered a given, and companies should seek to prevent the type of access that can give intruders the ability to cause harm.

In addition to the new product, WatchGuard is announcing that a new version of ServerLock for Sun Solaris platforms will be available July 9. It costs $1,700 per server.

AppLock/Web is available now for $600 per server.

WatchGuard: www.watchguard.com



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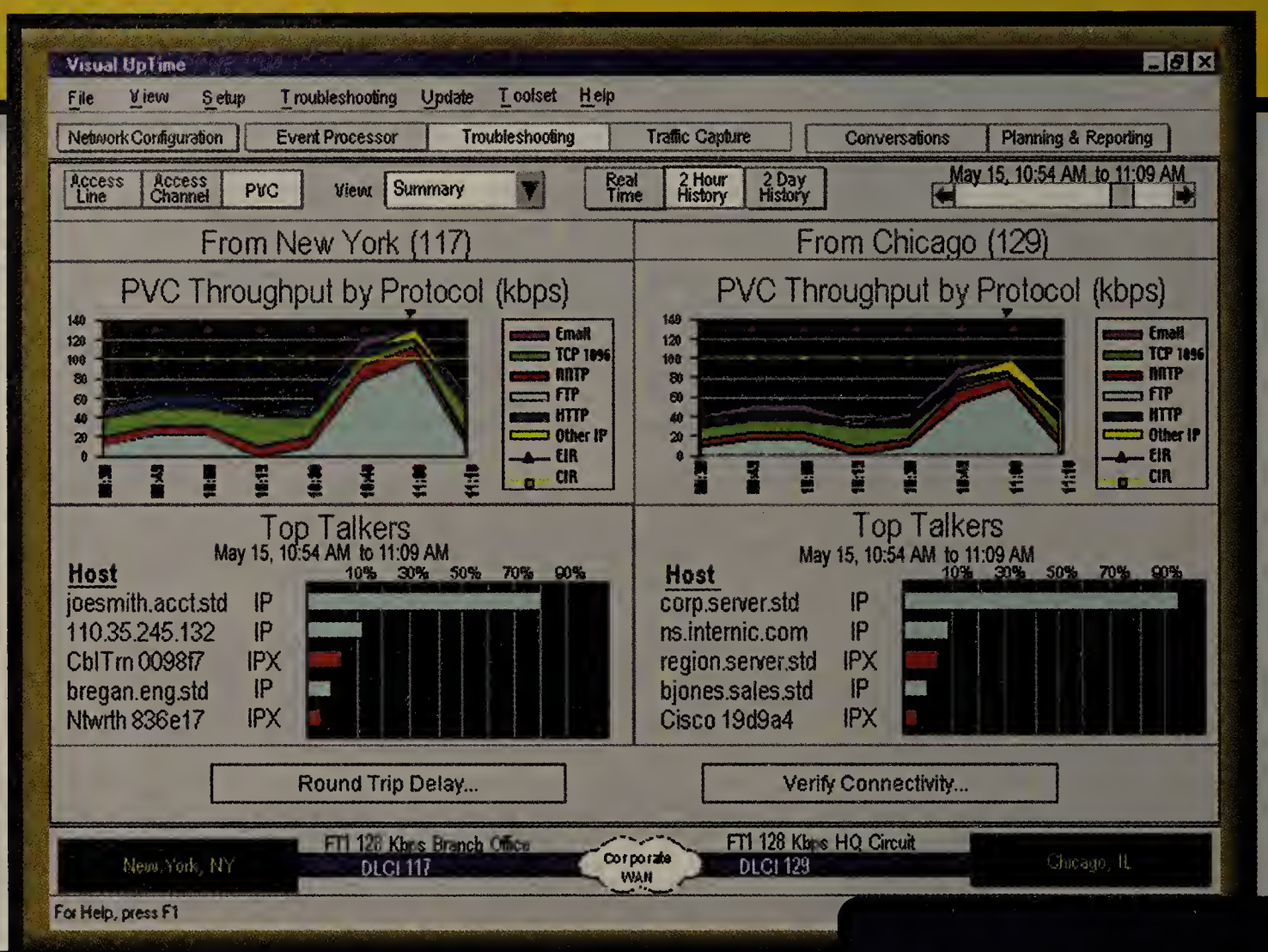

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Carriers & ISPs

The Internet, Extranets, Interexchange and Local Carriers, Wireless, Regulatory Affairs

Briefs

Covad Communications recently introduced an online tool designed to give customers up-to-date information on their DSL orders. Called **Web Self Service**, the tool lets customers track the separate stages involved in a DSL installation, letting them see the estimated time for each step, the current active step and the estimated time to completion. The service also lets customers reschedule installations.

Covad: www.covad.com

NaviPath, an ISP in Andover, Mass., has upgraded its dial-up points-of-presence to support V.92, the International Telecommunications Union's latest modem standard. This standard lets users connect to the Internet more quickly by reducing the amount of time it takes the user's modem to negotiate with the ISP's system. Users with V.92 modems can also increase their upstream data transmission speed to 48K bit/sec, up from 33.6K bit/sec with modems that support the ITU's V.90 standard. NaviPath says it is the first ISP to upgrade its dial-up network to support V.92.

NaviPath: www.navipath.com

EarthLink announced last week it is raising the monthly price for its dial-up unlimited Internet access service $2 per month. The price increase will affect 3.1 million customers. The service will cost $21.95 per month starting July 2 for new customers and Aug. 1 for existing customers. Increased costs associated with upgrading and maintaining its network to support additional customers and increased usage drove EarthLink to increase its fees, according to the company.

EarthLink: www.earthlink.com

Utilities poised to be telecom players

BY JENNIFER MEARS

Executives from the country's gas and electric utilities see a window of opportunity in today's slumping telecommunications market and are poised to take advantage.

More than 60 investor-owned utilities operate telecommunications-focused subsidiaries, according to Beth Griffiths, research director of the United Telecom Council (UTC), an organization created more than 50 years ago to represent the interests of utilities, gas pipelines and other telecommunications-dependent industries.

If the turnout at the UTC's Telecom 2001 conference, "Revving Up for Telecom Success," is any indication, more utilities will soon follow. Hundreds of utility executives and industry professionals were in Milwaukee last week to learn about taking advantage of the telecommunications infrastructure and large customer base they already have in place.

Utilities have long had robust internal communications networks to maintain contact with field technicians when outages occur. The Telecommunications Act of 1996 opened the door for utilities to enter the competitive telecommunications business. Since then, a steady stream of utilities has entered the market, creating unregulated subsidiaries that have focused on the wholesale "carrier's carrier" market, offering dark fiber and bandwidth to established telephone companies reluctant to shell out the capital needed to build infrastructure.

Increasingly, these telecommunications subsidiaries aim to provide metropolitan-area connections, for example, to large corporate campuses, hospitals and universities.

In addition, the plan to use power lines to deliver high-speed voice and data transmissions has been successful in Europe and is becoming reality in the U.S.

Rick Rumbarger, CEO of Powerline Technologies in Reston, Va., says his company has three trials under way.

"Powerline technologies are a reality in North America," he says. In February, Powerline announced it had completed field trials over a live power grid using both overhead and underground power lines "providing the viability of its 'last mile' broadband solution."

To underscore the importance of this emerging technology, the UTC created a subcommittee of its technical division devoted solely to power line communications.

What utilities offer

Public power utilities are already providing a variety of telecom services.

Service	# providing service
Broadband resale	32
Cable TV	78
Fiber leasing	97
High-speed data	55
Internet access	91
Local telephone	26

With telephone companies facing tough times, financially stable utilities are positioned to bring broadband and other telecommunications services to the communities they've served for decades, says Stephen Carrico, director of communications business development at Wisconsin Public Service and UTC's chairman of the board.

"As utility telecommunications professionals, we have the right skills at the right time . . . to really help and change things for the better," he says. "There are tons of opportunities [for utilities]. Don't let them pass you by."

One area where utilities may be particularly strong is serving metropolitan areas, where network bottlenecks have emerged because bandwidth demands are outpacing infrastructure capacity.

See **Utilities**, page 22

New Florida NAPs to improve connectivity to Latin America

BY DENISE PAPPALARDO

Well known as a hip nightspot, Miami is also becoming the place to build Internet traffic exchange sites because of its proximity to Latin America and because it's one of the largest, most southern cities on the East Coast.

Last week BellSouth launched its Multimedia Internet Exchange, a distributed network access point (NAP) where ISPs connect to exchange Internet traffic destined for their networks. A second site, called NAP of the Americas, is also expected to launch at the end of the week in Miami.

BellSouth has built a NAP that's deployed in four areas in south Florida, two sites in Miami and one each in Boca Raton and Wilton Manors. The service provider has teamed with Florida Power & Light FiberNet to connect its four sites over FPL's fiber-optic network that's connected using Sycamore Networks optical switching gear. WorldCom's UUNET, Qwest Communications, ImpSat, FPL FiberNet and Nova Southeaster are a few companies that have signed on to interconnect at BellSouth's NAP.

NAP of the Americas is a joint effort built by Terremark Worldwide and designed by Telecordia. A consortium of 85 service providers and universities selected the location and determined which companies would manage the facility. The consortium includes companies such as AT&T, Broadwing, Global Crossing, SBC and Yipes Communications.

Before either site became operational, the most southern exchange point was the Metropolitan Area Exchange in Washington, better known as MAE East. ISPs in Central America and South America could not directly set up peering connections from undersea cables that terminated in Florida. Instead, these ISPs had to lease capacity that stretched from Miami to MAE East more than 1,000 miles away.

While business users will likely not see new services based on the opening of the two NAPs in south Florida, multinational companies could see better connectivity between sites in the U.S. and Latin America.

"This solves a growing problem for a number of large ISPs," says Chris Mines, a group director at consulting firm Forrester Research.

Internet Services

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Eye on the carriers . Johna Till Johnson

DON'T GIVE UP ON 'EXTRANET SERVICE PROVIDERS'

In my last column I covered the seismic shifts that are forcing carriers to restructure their services, geographies and business models. Today, I'll zero in on a particular change that has broad implications for the services that you'll be managing in the future.

One of the biggest recent trends is for carriers to move "up the stack" in terms of the services they offer. Traditional carrier services (leased lines, fiber) are Layer 1, or transmission-layer services. The last decade's big discovery was the concept of protocol services, where providers transported data formatted into packets (whether Layer 2, 3, or 4). Metropolitan-area Ethernet services, IP services, frame relay and ATM all qualify.

The next logical step is to go one step higher and offer application-layer services such as security, performance management, transaction management and Web or storage hosting. But do users really need such services? Isn't that imagined market deader than a dot-com?

Not exactly. I started writing about such services two years ago when I noticed dozens of my clients sharing a need for intercompany communication. I'm talking about online supply chains linking manufacturers, distributors and retailers. These networks require application-layer services (and application-layer integration), and there's a critical value to having this integration offered by a third party.

Here's why. If "N" number of organizations need to connect to each other, you need about N squared (actually N times N-1) "connections." If each connection represents a lengthy and complex integration (such as securing an application), then you rapidly run into fierce scalability limitations. If instead some third party — the service provider — assumes the responsibility for making the connection, you only need N links (each organization connects to the service provider, rather than to every other organization).

That's the fundamental rationale that drove the creation of electronic data interchange networks. The problem with EDI networks was they were slow and clunky, and were built from proprietary network protocols.

Newer services will offer real-time transaction performance and will run (securely) across IP. I call the providers who offer this type of connectivity "extranet service providers" (ESP). When I first described them, I confidently predicted the rise of these ESPs within three to five years. Well, that was two years ago, and we're still waiting. What gives?

Turns out I assumed (incorrectly) that extranet services would be multiple-purpose, like traditional communications infrastructure (you run e-mail, file transfer, and that specialized corporate accounting package across the same IP net). Guess again. A service designed to provide application-level integration is almost by definition specific to that application, or at least to the vertical market that uses that application.

So instead of seeing the rise of general purpose ESPs, they're springing up in a few select areas, such as financial services (check out Radianz, which has a lot of ESP-like characteristics). You'll see others springing up in vertical markets in which there's both money and need — I'm thinking pharmaceuticals and high-end manufacturing. Over time, we'll see more of them.

Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting and engineering firm. She can be reached at johna@greenwichtech.com

Covad Communications halts BlueStar network operations

BY MICHAEL MARTIN

SANTA CLARA — Covad's announcement last week that it is shutting down the network of its BlueStar subsidiary could leave some customers in smaller cities without broadband service, but shouldn't affect the lion's share of BlueStar's 9,600 business clients.

Covad decided to close BlueStar to save money. Company officials say the move will give Covad enough cash on hand to continue operating through July 2002.

Rocky road

Recent goings-on at Covad include:

- **May 24:** Company announces much-delayed results for Q4 2000 and year-end 2000. In Q4, Covad reports a net loss of more than $900 million.
- **June 5:** Charles Hoffman is appointed president and CEO, replacing interim heads Frank Marshall and Chuck McMinn.
- **June 20:** Q1 2001 results show a net loss of almost $200 million.

BlueStar's network encompassed 235 central offices, many of which overlapped with Covad's. Only 91 of the central offices are outside Covad's own DSL network.

Covad is working to move BlueStar customers to Covad's network through its Covad Safety Net Program, which lets DSL users maintain their service while switching to Covad from a failing ISP.

When Covad acquired BlueStar, a Nashville ISP, in June 2000, the company had two goals in mind. One goal was to expand its customer base through the addition of BlueStar's customers in second- and third-tier Southeastern U.S. markets. The other goal was to use BlueStar to sell more DSL services directly instead of through third-party ISPs.

But the company says that in the current economic climate, serving second- and third-tier markets doesn't make sense. And the Covad.net program has emerged as the company's best direct sales channel.

Pat Hurley, an analyst with TeleChoice, says that shutting down BlueStar shouldn't have a negative impact on Covad.

"Saving money and operating as long as possible is the most important thing for Covad right now, and this move helps them do that," he says. "The thing they need to do is get some value-added services online like VPNs."

Utilities,
continued from page 21

Florida Power & Light's telecom subsidiary, FPL FiberNet, last year decided to invest $350 million to expand its intracity, metropolitan networks using up to 432-count cable.

The company has about 750 route miles of fiber in Miami, Fort Lauderdale and Tampa and expects to have hundreds more in St. Petersburg, Jacksonville, West Palm Beach and Boca Raton in the next month or so, says Neil Flynn, FPL FiberNet's president. In total, FPL FiberNet has "well over a quarter of a million fiber miles," Flynn says.

FPL FiberNet has a long list of customers from long-distance providers such as Bell South and SBC, to Web hosting companies and ISPs such as Genuity. What's more, FiberNet is making money, Flynn says.

Companies can cash in on utilities' foray into this type of networking because utilities will be looking for "anchor tenants" to justify a telecom expansion. Businesses can get good deals by being the first customer to use a utility telecommunications network, UTC's Griffiths says.

Griffiths and Carrico stressed the importance of partnerships as utilities move further into telecommunications. In addition to infrastructure, utilities selling telecommunications services need technical and customer service support.

Acquiring a competitive local exchange carrier is one route, but CLECs have been seen as too expensive.

"Well, they're not expensive anymore," Griffiths says. "There are a lot of assets out there."

Mary Regan, an analyst with The Yankee Group, says IT managers should keep their eyes on what's happening with utilities in regard to telecommunications services because it offers an alternative to incumbent local exchange carriers and regional Bell operating companies that sometimes can be tough negotiators.

"It's worth watching in terms of identifying more attractive deals," she says.

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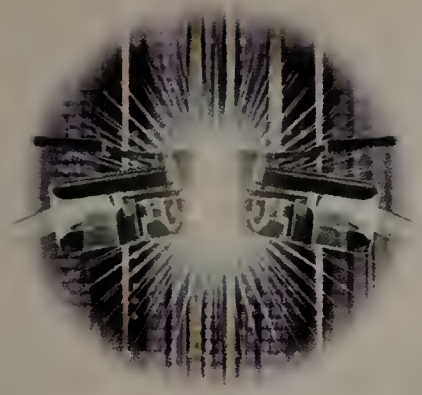

The Edge

Service provider developments at the juncture between the enterprise and the new public network

Briefs

Lucent last week announced **Kenan Revenue Locator**, software that helps service providers identify and recover revenue leaks t.

The Kenan Revenue Locator analyzes data generated by network elements and points out abnormalities that may identify causes of revenue leakage. It employs thresholds, alarms and customized queries and outputs.

The Kenan Revenue Locator software can work with multiple mediation systems, including Lucent's Billdats program.

The Kenan Revenue Locator is available now.

Lucent: www.lucent.com

Nortel and **Sun** have announced a joint marketing effort for Internet data centers.

Under the **Rapid Start Web Solutions** arrangement, the companies will preconfigure Nortel's Alteon Web switches, Sun's Sun Netra T1 thin servers, and software from Sun and iPlanet E-Commerce Solutions, a Sun-Netscape Alliance.

Rapid Start Web Solutions are available now.

Nortel: www.nortelnetworks.com; Sun: www.sun.com

Integral Access and **AP Engines** announced that AP's operational support system integration software now supports Integral's PurePacket IP/Multiprotocol Label Switching access system. This lets service providers bill customers on a per-connection basis for the usage of PurePacket-based IP data services without modifying existing operations support systems (OSS). AP's InterLink OSS integration software enables the integration of new systems and services into legacy OSS systems.

Integral Access: www.integralaccess.com; AP Engines: www.apengines.com.

To ring or to mesh: Which is best?

Industry players say, 'A place for everything and everything in its place.'

BY TERRI GIMPELSON

With this ring . . . or with this mesh?

The debate over which architecture is better-suited for metropolitan networks rages on with no consensus in sight. Some say that mesh networks are more cost-effective and easier to scale than ring networks. Others argue that rings are widely deployed, well known and the only type of network to quickly restore routes.

Mesh networks are achieved when each node on a network is connected via a circuit to every other node on the network. Full mesh networks are expensive to deploy, but yield the greatest amount of redundancy, supporters say.

When each node in the network is connected in a closed loop, a ring network is achieved. Rings are known for their ability to quickly switch traffic paths from the primary fiber to the redundant fiber in the event of a fiber cut.

The ring/mesh debate applies to the metropolitan core, where the multiple fiber route topology is more cost-effective for provisioning, scale and restoration, proponents say. Rings are likely to remain more economical in the access loop where there is not a lot of fiber deployed.

"Mesh networks are only more cost-effective if you're able to have four or more routes out in a distinct location," says Jon Morgan, director of product management at Appian Communications. "Most of the time you're lucky to get two routes in the access arena in the metro."

Though physical fiber topologies are unlikely to change in the near future, Sycamore Networks notes a gradual migration to meshes by incumbent local exchange carriers and regional Bell operating companies because of fast, dynamic service provisioning and traffic rerouting, says Jim Mooney, a Sycamore vice president.

"There is a compelling need for service providers to differentiate themselves," he says. "That's hard to do with the rigid and static nature of ring topologies."

However, Mooney adds that mesh networks must still meet the challenge of proving sub-50 msec recovery when handling voice.

Alidian Networks, a metropolitan Ethernet start-up, says there's a place for both.

"It really depends upon traffic patterns and service provider needs as to which type of network would be best," says Bob Lefkowits, an Alidian vice president. "In major cases, the physical ring is still more cost-effective." ◪

Sirius gets serious with service-level management

BY JIM DUFFY

DALLAS — Service-level management is about to gain a new player in North America, as a German company sets up shop with claims of a unique perspective and approach to the market.

Sirius, which began operations in Munich in 1994, says it is the only vendor in the service-level management market that can provide real-time data on imminent service-level breaches. Others, the company says, provide "post-mortem" data on service-level irregularities after the breach, resulting in reactive management that can't even pinpoint which customers were affected.

"Root cause is almost instantaneous," says Ken Davis, Sirius COO, adding that Sirius can provide a three- to six-month return on investment instead of the usual 18-month ROI in service management. Sirius recently beat out 29 other vendors for a multimillion-dollar deal with giant German carrier Deutsche Telekom.

Sirius software is composed of service monitors and enterprise objects.

Service monitors are the user interface into the managed environment. They model the service topology and provide real-time service and element status information, Sirius says.

Enterprise objects are distributed monitors that collect performance, quality and status information. Performance and quality monitoring in enterprise objects is based on definitions established by standardization bodies, such as the Telemanagement Forum.

Sirius participated in the most recent Catalyst programs established by the Forum.

Enterprise objects process outage, availability, performance and quality data of each service element. They also compute business impact, such as revenue gains and losses, Sirius says.

Analysts say the Sirius software fits in a market between element-oriented service-level managers — such as Micromuse's NetCool — and operations support systems.

"Sirius looks at a wider range of parameters," says Rich Ptak, senior vice president of the Hurwitz Group. "And nobody has as short a time for feedback as they do."

Yet, Sirius still has some work to do, Ptak says. It needs to enhance its predictive modeling capabilities to foreshadow network/service saturation, winnow down its sales cycle and hone its message.

"It takes awhile to position themselves and how they complement other management systems," Ptak says.

Sirius: www.sirius-eos.com

PROFILE: SIRIUS

Locations:	Munich and Dallas
Founded:	1996
Products:	Service monitors, prepackaged service-level management software for mobile wireless, ATM, DSL, e-commerce, outsourcing and ASP networks.
Management:	Werner Neusel, founder; Claudia Aretz, co-founder; Ken Davis, COO.
Customers:	Deutsche Telekom; Bank für Haus- und Grundbesitz eG - HAUSBANK MÜNCHEN.
Fun fact:	Company founders implemented management systems for major German companies, such as Daimler-Benz, BASF and Deutsche Telekom, before founding Sirius.

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Briefs

Infoteria last week announced the **Asteria Platform for RosettaNet**, XML-based software that lets businesses integrate front and back-office systems into RosettaNet standard-based trading communities. The platform consists of the Asteria Enterprise Server, which automates partnerships by linking companies over the Internet that aren't already connected through their legacy systems, and the Asteria Planet for RosettaNet Basics, which connects trading partners of any size. It also includes components for business process automation.

The components are available, while the Enterprise Server and Planet will ship by the third quarter of this year. The Enterprise Server will cost around $200,000, but pricing wasn't available for Planet.

Infoteria: www.infoteria.com

Vasco last week unveiled **Vacman Server 6.0 for Web**, security software for adding authentication, authorization and security administration of Web portals and Web-enabled applications. Vacman 6.0, based on software Vasco obtained in its purchase of Identikey, now supports the Vasco Digipass authentication tokens. Vacman 6.0 starts at $15,000 for a 100-user license and 1,000 Digipass authenticators.

Vasco: www.vasco.com

Covisint selected **webMethods** to offer software that would integrate automakers and suppliers to the online automotive exchange. Under the terms of the deal, Covisint would use webMethods integration platform to automate its internal business processes, such as product development, procurement and supply chain management. The agreement includes software and services. Financial details of the deal were not disclosed.

Multilingual domain name usage lags

BY CAROLYN DUFFY MARSAN

Internationalized domain names have attracted great interest among non-English speaking users of the Internet and are a top priority for the 'Net's policymakers. But technical difficulties and a lack of industry standards are hampering corporate use of these names.

VeriSign Global Registry Services reports that it has sold one million internationalized domain names since it launched a testbed seven months ago. The majority of those names — about 80% — were sold in the first few weeks of availability and are for Asian languages.

Domain name registars report that sales of internationalized domain names have tapered off even though the testbed now supports characters used in 350 languages. VeriSign charges registrars $6 per internationalized domain name, but registrars mark up the price to around $35, which is the standard price for other names in the .com, .net and .org domains.

Foreign speculators and small businesses are purchasing internationalized names, while sales to U.S. multinational companies are scarce, registrars say. Few of these companies are using internationalized domain names because they have proven too difficult for end users to navigate.

"We have not had a large outcry from our customer base for multilingual domain names," says Eric Brown, director of operations at BulkRegister.com, which counts Revlon and Amway among its customers. BulkRegister.com decided not to participate in VeriSign's testbed because "VeriSign had no way to resolve the names . . . We felt it was premature."

Until recently, Internet users who wanted to resolve internationalized domain names had to download software that let their Web browsers recognize non-ASCII characters. VeriSign offers software plug-ins from i-DNS.net International and Walid that convert non-English character domain names into ASCII equivalents for transmission over the Internet.

So far, use of these plug-ins has been limited. Walid Director Doug Hawkins says less than 100,000 people — a small fraction of Internet users — have downloaded its free software to access internationalized domain names.

"There's a lot of confusion yet as to how the names will actually work," Hawkins says. "That's keeping the practical usage of these domain names [far] away."

In June, VeriSign announced a deal with RealNames and Microsoft that eases the resolution of internationalized domain names. Now users of Microsoft's Internet Explorer 5.0 browser can automatically resolve internationalized domain names by using keyword technology from RealNames instead of a software plug-in.

The MSN Search function recognizes an internationalized domain name and forwards it to RealNames' servers. RealNames

See **Domain names**, page 26

The name game winds down

Initially hot, internationalized domain name sales have tapered off.

November 2000
VeriSign launches IDN testbed with three languages: Chinese, Japanese and Korean.

December 2000
700,000 names sold in the first 30 days; 25 registrars available.

January 2001
800,000 names sold; free plug-in software available for end users to access names.

February 2001
French, German, Spanish, Greek and Russian languages added.

March 2001
850,000 names sold; Arabic, Hebrew and Thai languages added.

April 2001
Full Unicode support means names in 350 languages are available.

May 2001
920,000 names sold; redirection capabilities available for names.

June 2001
One million names sold; Microsoft browser support announced.

SOURCE VERISIGN GLOBAL REGISTRY SERVICES

RiverSoft helps identify net problems

BY DENISE DUBIE

SAN FRANCISCO — RiverSoft Technologies has unveiled a new release of its flagship network management software that may help users more quickly identify problems and track network resource changes.

RiverSoft last week heralded Version 3.0 of its Network Management Operating System (NMOS) that now lets customers discover new elements in their networks and add them to their topology database without having to rediscover the entire network. The idea is to help users manage resources in real-time rather than wait until the end of the day when most net management topology databases are updated, the company says.

Another new feature lets users group network devices based on what business service they collectively deliver, and apply different management rules to different groups. The plan is to help customers more accurately identify problems and describe their effects on particular business services.

RiverSoft's NMOS technology includes Active Object Classes that enable the RiverSoft discovery system to collect connectivity information from devices used in IP networks. The system can then reconcile conflicting and misleading information concerning network devices and store a consistent topography of those devices in the topography database. The classes let users define the behavior and characteristics of devices, what information they want to pull from the devices and how they want to extract the data.

Also in Version 3.0 is a Central Management Console that lets customers group and view all network elements, applications, departments, networking technologies or geographical locations.

Fault Manager is the product, and NMOS is the code that Fault Manager uses. RiverSoft separated the two so to sell its NMOS technology through licensing agreements with companies such as Intel, Cisco and Hewlett-Packard. Intel included NMOS technology in its NetStructure Management Appliances in September 2000.

And NMOS was included in a pilot run of CiscoWorks mobile wireless products in March, with general availability of the products scheduled for the end of this month. HP says it intends to include NMOS in upcoming versions of its OpenView software by year-end.

See **Riversoft**, page 26

'Net Insider . Scott Bradner

THE VIEW DEPENDS ON WHERE YOU STAND

If *The Wall Street Journal* is to be believed, Global Crossing has built itself a coffin, under budget and on time. Global Crossing holds a different view of its achievement.

Two weeks ago Global Crossing announced that it had completed its "core network." This is a combination undersea and land-based "IP-based fiber-optic network" connecting 200 major cities in 27 countries around the world. There are some nice maps of the network on the Global Crossing Web site (www.globalcrossing.com) under the "Network" tab. It does not blanket the globe — it misses Africa, most of Asia, and Eastern Europe — but is still very impressive. This is just the sort of thing that seemed a long way off just a few years ago.

The timing of the Global Crossing announcement could have been better.

Its network is being completed during a feeding frenzy among journalists and commentators about a fiber glut. The *Journal* estimates that 97% of the long-haul fiber in the U.S. is currently unused. *The Wall Street Journal's* coverage of the Global Crossing achievement fit into the frenzy and could have been printed on doom-colored paper. There seemed to be nothing that the *Journal* could see that might be remotely considered positive in the whole situation in spite of a list of deals that the *Journal* reported that Global Crossing had signed.

Naturally it did not take Global Crossing long to respond. The day after the *Journal* article ran Global Crossing posted a "statement correcting factual inaccuracies in *Wall Street Journal* story." Its statement painted a far brighter picture --- a picture that hints at, but does not come right out and claim, a rosy future.

I take the extreme of the fiber glut proponents with more than a grain of salt. Yes, lots of fiber has been installed during the last few years, 90 million km last year alone, if some reports are to be believed. But that fiber does not go everywhere. I doubt there is a fiber glut between Minot, N.D., and Wichita, Kan. And I doubt very much that there is excess fiber into Lima, Peru. It was the completion of a link into Lima that precipitated the Global Crossing announcement. So while there may be supply in excess of demand in many places in the U.S. and Western Europe and maybe even going across the oceans I expect there are enough places where Global Crossing is the only supplier to ensure a viable, if not spectacular, business model.

The message is the time for simple, broad brush, U.S.-centric views of the technology world is gone, if indeed it was ever a reasonable thing.

Disclaimer: The above is my own view, not a Harvard-centric one.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Domain names,
continued from page 25

translates the internationalized domain name characters into ASCII equivalents for transmission over the Internet. The translation process is transparent to the end user.

VeriSign officials say the RealNames technology will work with all the internationalized domain names already sold through its testbed.

"This service enhancement provides for commereial use of those names in a way that's transparent for end users," says Tom Newell, viee president of internationalized domain name serviees at VeriSign. Newell says these names are now "viable and resolvable."

Neither end users nor Web site operators need to pay additional fees to use the RealNames technology to resolve internationalized domain names. Instead, the financial agreement is between VeriSign and RealNames, whose owners include VeriSign and Microsoft.

"In the past, a company would have been [reluctant] to publicize an internationalized domain name," says Keith Teare, RealNames CEO. "Now it's possible for companies to promote Web addresses using foreign character sets like a normal dot-com name."

The VeriSign/RealNames deal is viewed as a stopgap measure until a standard method for encoding and transmitting internationalized domain names is developed by the Internet Engineering Task Force (IETF). The IETF effort is several months behind schedule because of patent claims filed earlier this year by Walid relating to the resolution of internationalized domain names. The IETF's working group recently decided that the Walid patent doesn't apply to its work. So it is now finalizing a set of protocols that has the most support within the group. A decision on these protocols should be made by August.

U.S. multinational companies seem willing to wait for the IETF standard before rolling out internationalized domain names.

"Companies are very keen on ensuring that there's a single standard that's used so there's no confusion for end users or interoperability problems," says Theresa Swinehart, an attorney with WorldCom and a member of the business constituency that advises the Internet Corporation for Assigned Names and Numbers. "They're looking forward to seeing the final efforts of the IETF working group." ◪

www.nwfusion.com
NAMING THE TRENDS
Read how a government study of the Internet domain name system forecasts the next 10 years and link to our domain-name breaking news.
DocFinder 4930
find it online

Riversoft,
continued from page 25

"[Fault Manager] is set up in such a way that users can add new technologies at will. There's no recoding that has to be done, which speeds users time to technology," says Valerie O'Connell, an analyst with the Aberdeen Group.

The object classes RiverSoft added in this release make it possible to define devices and "easy to administer a system because you really only have to define a policy once," she says.

Ray Terrell, communications manager at NEC's U.S. Corporate Network Administration Division in Irving, Texas, uses Fault Manager to monitor the company's WAN links and perform fault isolation. The software alerts network managers to potential problems at the company's 50 sites.

"We can troubleshoot and discover the network without having to build and manually recreate profiles," he says. Terrell has reduced network administration about 70% using Fault Manager 2.0, he says, and now the root-cause analysis features in Version 3.0 will help him more quickly address problems. He says NEC was using Aprisma's Spectrum to perform the tasks that RiverSoft handles now, but Spectrum "requires a lot of resources" that his staff could better use elsewhere.

NMOS Version 3.0 is available now in RiverSoft's Fault Manager. Pricing for Fault Manager starts at $25,000, depending on network configuration.

RiverSoft: www.riversoft.com

Matchless Play

In golf, as in business information systems, there is no substitute for precision. And in the production of one of golf's premier events, the U.S. Open, precision takes on a very special meaning.

When the first ball dropped into the first hole of the opening round of the 101st U.S. Open at Tulsa's Southern Hills Country Club on June 14, it set off a chain of events resulting in a stream of scoring data sent in real time to information-hungry media outlets around the world. "For 18 consecutive years, only one company—Unisys—has been the brains and brawn behind the sophisticated scoring system at this elite event," says David Fox, Director of Sports Marketing at Unisys.

Thanks to various innovations Unisys has made over the years, millions of golf fans followed the Open in real time on the Web, where they could instantly view a myriad of comparative statistics, just like the information available to the world's media and major networks. "During last year's Open, 80% of the visitors to our Website came for scoring information," notes Marty Parkes, Senior Director of Communications of the United States Golf Association, which hosts the Open.

Technology from Unisys has become an integral part of golf's most prestigious and exciting global events, and Unisys was proud to provide scoring at the U.S. Open Golf Championship, June 14-17.
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Network management for next to nothing

BY DENISE DUBIE

NETWORK MANAGEMENT

Some tools for managing networks without breaking the bank.

Plumbers don't throw out the 50-year-old copper pipes every time they spring a leak; they plug the hole. As caretakers of the network plumbing, network professionals also face problems that need reliable and inexpensive fixes. That's where network management software is supposed to help.

"You go to the big guys and they want thousands [of dollars] per user with thousands per year in maintenance," says Ralph Mackiewicz, vice president of marketing at Sisco, an integration software provider in Sterling Heights, Mich. He says his company doesn't purchase much network management software because that "kind of application takes a lot of effort to use effectively with a [return on investment] that isn't significant enough" to justify the cost.

But there is hope. Many management developers and vendors make their software and applications available for free or a fairly low price. *Network World* has reported several tools to readers in past articles (see www.nwfusion.com, DocFinders: 4922 and 4923), but there are some new tools that have come to the forefront.

For example, Greg Lamoree, Web project leader at Buckeye Pipe Line, a Pennsylvania petroleum provider, developed his own tools, Third Watch Server Monitor and Monster Ping (see graphic), and started his own company, Random Minds, to distribute them to other users.

He needed certain features that smaller programs, such as ping and traceroute, couldn't deliver but he didn't need all the features offered in products from companies such as Computer Associates, Tivoli and BMC. And he couldn't justify spending the money on software from those larger network management vendors, noting that even so-called point products can cost tens of thousands of dollars.

"In a lot of cases, we just care if it's up or down," Lamoree says. "I know I can't spend my life looking at pages and pages of data to figure out what's working and when."

He built "several little applications" that performed tasks such as ping and traceroute simultaneously and in real time. "I wanted to make something that only required setting two options to get this information," he adds. Lamoree charges for his work, but many products are free, such as:

Bargain shopping

Not everything can be free, but there are many inexpensive tools that can make net management easier.

Tool	Description	Price	Web address
Ping Plotter	Enhanced traceroute program designed to troubleshoot Internet connections.	$15	www.pingplotter.com
Monster Ping	Several standard lookup tools combined into one interface: ping, traceroute, DNS lookup, port scan, open port, monitor server and Whois.	$28	www.randomminds.com/software
TreeSize	Hard-disk space manager for Windows 98, ME, NT and 2000 that lets you recover megabytes from folders on your drives.	$30	www.jam-software.com/treesize.html
WanSpy	Software that monitors the load generated by different machines on the WAN port of a Cisco router.	$90	www.dvsinfo.com/downloads.html
DVS Network Monitor	Software that provides real-time monitoring of network traffic and then analyzes the traffic based on users' input.	$90	www.dvsinfo.com/downloads.html

Loriot

Loriot is a free network node manager for Windows operating systems. Designed by a private French developer, Lecointe Ludovic, the program is said to manage SNMP, Internet Control Message Protocol devices and other processes from small and large networks. The software can manage hosts, routers, links — any SNMP devices in your LAN, WAN or metropolitan-area network, Ludovic says on his Web site. The software performs network discovery, supports plug-ins and includes an HTTP daemon module. The plug-ins let Loriot pull information from other network management systems and the HTTP module lets users access Loriot from any console on the network. Loriot also works with existing network management systems and can reroute local events such as SNMP traps to a master Loriot console.

Loriot: www.llecointe.com

Net-snmp

Developers from the University of California at Davis created net-snmp (formerly known as ucd-snmp) and offer the package for free. Net-snmp is a set of software tools that deal specifically with the SNMP protocol and managing SNMP devices. The toolkit provides a suite of command-line applications that can be used to query and act on remote SNMP agents. Users can pull information, such as device availability, throughput and network latency, from the devices that could help them enhance network performance.

The software can also be configured to query and act on remote SNMP agents, automating some corrective actions and improving performance. Net-snmp also provides tools and libraries relating to SNMP, including an extensible agent, an SNMP library, tools to request from or send information to SNMP agents, and tools to generate and handle SNMP traps.

Net-snmp: http://sourceforge.net/project/showfiles.php?group_ id =12694

Sec

Private developer Risto Vaarandi developed sec, an event correlator, to manage network devices as well as applications, but he claims on the software's Web site that sec can be used to solve any other task where event correlation can improve performance. Sec is a free, platform-independent, event-correlation tool. Sec compares the predefined rules with the performance of the network to determine where performance may be degrading. Any instances that differ are then correlated according to the rules in a predefined configuration file, and acted upon by executing user-specified commands. Sec can be integrated with other network management tools and performs several automated functions as defined by the user.

Sec: http://kodu.neti.ee/~risto/sec/

SHAMAN

The University of Delaware is responsible for this free tool. SHAMAN, which stands for Spreadsheet-based Hierarchical Architecture for Management, is software designed to provide network management by distributing management functions based on the nature and urgency of the task. The software can be preconfigured to perform routine duties while the network manager addresses more critical jobs. Network managers program the software, or "intermediate manager," using a scripting Management Information Base and a language designed to address SNMP management to take automated corrective action for certain network events. The intermediate manager receives scripts, interprets the scripts, sends commands to agents and receives data from the agents. SHAMAN then processes the data and generates event reports as defined in the scripts. It also includes a graphical user interface that can be used by a manager to construct, load and execute scripts in an intermediate manager.

SHAMAN: www.cis.udel.edu/~shaman/

Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

Ask Dr. Internet

By Steve Blass

You recently mentioned a Perl tool called MailSender that sends Web forms by e-mail. Does it work with Windows?

First, several readers shared advice that one should attach the forms to the mail message rather then sending HTML in the message body. This is good advice if you are not certain all the recipients will be able to view HTML e-mail. Using Perl tools with Windows Web servers can be straightforward, although there's more than one way to do it. First, download and install the ActivePerl distribution from www.activestate.com. After installing Perl, make sure that Windows associates perl.exe with *.pl files by checking the File/Properties settings for the example.pl file found in the Perl/eg/ directory on the drive where you installed Perl. Now open a command window in that directory and type "example. pl." You should get a hello message back. If that works, edit the example.pl file so it looks like: *print "Content-type: text/html\n\n<html><body> Hello from ActivePerl!</ body></html>";*

Copy that to your Web server's cgi-bin (or equivalent) directory. Aim your browser at this new script to verify that your server will execute *.pl scripts through the Windows file association mechanism. You may need to restart your Web server if you made configuration changes to turn on script execution privileges or to recognize the new file association.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

MPLS proposal to aid service levels

The four service classes could reduce lead times from service providers deploying technology.

BY NIGEL BURMEISTER

Multi-protocol Label Switching is gaining momentum within the service provider community.

In addition to being well-suited to handle the traffic engineering and scaling issues associated with large carrier backbone networks, MPLS will enable service providers to offer enterprise customers new value-added services.

Many applications important to corporations have quality-of-service requirements that are different from one another. Current MPLS standards do not support different service classes, but a new set of extensions to MPLS has been developed that should fix the problem.

MPLS also has been enhanced from its original design to support traffic engineering through the implementation of several MPLS traffic-engineering extension Internet Engineering Task Force (IETF) drafts. This traffic-engineering capability enables service providers to use network resources more efficiently by explicitly mapping how traffic flows through their networks.

In the traffic-engineering scenario, the MPLS forwarding device (label switch router [LSR]) located at the ingress to the MPLS domain is responsible for establishing a path through the MPLS network (called a label switched path) when it receives a request to do so. To create this path, the ingress LSR must know the current state of the network. In particular, the LSR must have some knowledge of the bandwidth available on each link in the network.

Existing IP link-state protocols, such as Open Shortest Path First and IS-IS, have been extended to propagate this information throughout the network. Once the ingress LSR has a complete picture of the bandwidth availability in the network, it can establish a path that meets the demands of the request.

But the traffic-engineering extensions are only part of the answer. Although they provide a mechanism to determine a path through an MPLS network that meets certain constraints, they are unable to associate bandwidth availability with different service classes. The ingress LSR sees aggregate bandwidths associated with each link in the network, but can't associate slices of bandwidth on each link with different classes of traffic.

Not many telecommunications customers would be willing to accept a service whereby the service provider is unable to differentiate and service different traffic types in different ways. For example, companies paying a premium for a real-time voice service would not be willing to accept the performance associated with an e-mail application.

For this reason, a new set of extensions to MPLS has been developed that enables bandwidth to be reserved in the appropriate class of service, ensuring its availability when high-priority traffic needs to be delivered.

The IETF drafts propose four service classes that align closely with the four major traffic types in service provider networks:

- A deterministic traffic class that emulates private-line and time-division multiplexing services.
- A real-time traffic class for time-sensitive traffic, such as packetized voice or video or storage-area network apps.
- An assured traffic class for business-critical applications.
- A best-effort traffic class that offers no guarantees on performance and parallels the service offered by 'Net.

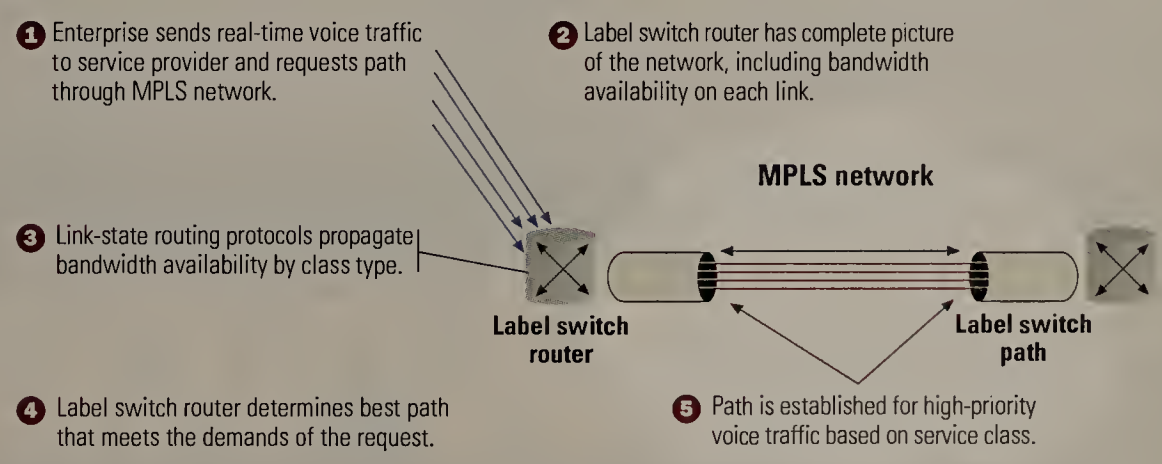
These four service classes will let service providers quickly provision value-added services with class-of-service guarantees with a high degree of service fidelity across an MPLS packet-based core network. In turn, enterprise customers can expect increased service offerings with predictable service levels and reduced lead times from service providers deploying this technology.

Burmeister is a product manager at Tenor Networks. He can be reached at nigel_burmeister@tenornetworks.com.

HOW IT WORKS

MPLS extensions

New service classes would enable bandwidth to be reserved for the appropriate traffic type.



Got great ideas?

Network World **is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).**

Gearhead . inside the network machine . Mark Gibbs

THE FREEDOM TO ORGANIZE

A few weeks ago we discussed Nelson E-mail Organizer (www.nwfusion.com. DocFinder: 4928), which we liked a lot. Nelson indexes all of your e-mail and allows you to search, categorize, flag, move, delete and generally organize all the messages you get and have ever gotten if you are a Microsoft Outlook 97, 98 or 2000 user.

It seems that this segment of the market — the "helping you get organized and while you're at it throw away all that junk and clean up your room" segment — is attracting more competition these days.

Case in point: a new tool in this category, OnePlace from Franklin Covey (www.franklincovey.com/oneplace/).

OnePlace is even more ambitious than Nelson's E-Mail Organizer in that it indexes not only your e-mail, but also anything else on your PC. This covers the leading word processor file types, spreadsheets, Web browsers, PowerPoint, various graphical file formats and e-mail applications — including AOL Mail 2.5, Eudora 4.X, Netscape Communicator Mail, Microsoft Outlook Express and good ol' Outlook.

OnePlace is also a search engine for the Web, performing metasearches on the leading engines, and even serves as a Web browser interface. It can schedule when indexing should be performed, where OnePlace should look for content, and what should be included or excluded.

Its user interface is a little unusual. Rather than follow the standard Windows menu layout, the product has a browser-like menu bar with several buttons and drop-down menus.

The user interface consists of a number of panes. There is a navigation panel on the left and a number of panels in the larger area on the right. Choosing one of the data collections in the navigation panel selects the display on the right. For user-defined collections, the layout can be defined from any of six templates. Once a template is chosen, you can assign tabs to each subpanel and select what data to display when that tab is selected.

You can assign data from Outlook (such as your appointments, task lists and so on) to tabs as well as Web pages and local documents. Where OnePlace shines is in automatically building relationships between items. Thus, if "Fred Stein" appears in an appointment item, OnePlace will turn that name into a link to Mr. Stein's contact entry.

OnePlace is an ambitious product that, as Franklin Covey's marketing suggests, gives you "The freedom to forget."

The downsides of OnePlace are: 1.) it is big (64M bytes of RAM is required) and it has a significant processor overhead; and 2.) it is buggy — it crashed on us fairly regularly. That said, it recovers well (double click on the OnePlace icon in the system tray and it relaunches).

OnePlace is a great and ambitious idea. Once it is polished and less buggy, it could dominate the market. Gearhead awards OnePlace six gear teeth out of 10.

Forget it at gearhead@gibbs.com.

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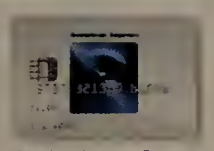

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Opinions

Editorial

Fixed wireless: Coming to your remote offices soon

Although the industry is young and the technology often incompatible, fixed wireless will soon play a last-mile role in your support of teleworkers and branch offices.

At least that is what some of the biggest players were saying at the Wireless Communications Association's event in Boston last week, the 14th annual gathering of fixed-wireless equipment vendors and service providers.

Cameron Rejali, Sprint vice president of wireless products and operations, says his company has installed fixed wireless in 14 markets, including Chicago, Phoenix and Houston, and will launch a VPN telecommuter product within a month.

While AT&T doesn't have a similar package on the drawing board, Michael Keith, CEO of AT&T Fixed Wireless Service, is just as bullish on fixed wireless. Both agree that fixed wireless' greatest potential is in reaching consumers and small businesses or branch offices.

Sprint has a head start on AT&T, but the company's service currently only supports data and requires buildings to be within sight of a tower, shortcomings the company promises to overcome.

AT&T, which is deploying service in cities such as Dallas, San Diego and Los Angeles, is starting with a non-line-of-sight technology that supports voice and data. That means it will be easier to deploy and the service packages will be more appealing right off the bat.

Keith says voice/data bundles are the killer app. The company's service — 128K up and 600-700K down — comes with 10 IP addresses, four of which can be used to support 16K packetized voice lines while the rest are used for data devices.

AT&T's CPE comes with a built-in phoneline network. Install the antenna to an outside wall, connect it to a VCR-sized gizmo inside, and then any PC outfitted with a HomePNA network interface can connect to the wireless link by plugging it into a phone jack.

Costs for services vary. AT&T says $80 per month buys two voice lines and high-speed data. Sprint's data-only consumer service costs about $45 per month, but the business flavor jumps up to $150 to $200 per month because it includes multiple e-mail accounts, a Web page and other goodies.

The upshot: Fixed wireless is emerging as a viable alternative to DSL and cable modems. Stay tuned.

— John Dix
Editor in chief
jdix@nww.com

Message Queue

Unions pro and con

Regarding your face-off on whether IT workers need a union (www.nwfusion.com, DocFinder: 4925):

Doctors are now forming unions. Airline pilots have been unionized for years. IT workers are sometimes the darlings of their companies, but older workers and women typically are treated less well than young male workers. As for the Occupational Safety and Health Administration taking care of your injuries, the Senate just repealed the rules protecting workers from repetitive strain injuries such as carpal tunnel syndrome, which are rampant in the IT business.

I am an IT worker. I belong to a union, and I feel terrific about it. It has helped the workers in my workplace get better treatment and improved wages. Union, yes!

Betty Gunther
Los Alamos, N.M.

An IT union is a bad idea. Why would I want to pay dues for a service I can provide myself? If the only job I'm qualified for is an 80-hour-per-week position with poor benefits, then I should spend more time reading technical training manuals and less time surfing the 'Net. If I'm not capable or willing to learn on my own, then I better get out of the IT field.

As an IT professional, I'm happy with the fact that even in this struggling economy I've still got darn good job security. I work in an office environment and get reasonable benefits and good compensation — on par with the industry average for my skill set. I've gotten to my position because I've worked hard and have committed myself to moving forward. The last thing I want is to have to pay a monthly fee to support someone who is unsatisfied with his position and has no other options.

If you don't have options in today's market, there is a problem and it's probably you.

Eric Brill
Cleveland

GroupWise regroups

Regarding "Novell's GroupWise 6 is No. 1 with a bullet" (www.nwfusion.com, DocFinder: 4926):

It's nice to see an article about GroupWise. Most computer publications seem to ignore the fact that there are more than 20 million GroupWise users. I'm not surprised that the article is positive, because GroupWise has always been the standard for networked messaging systems in terms of reliability, flexibility and scalability.

James Taylor
Managing partner
The East Cobb Group
Marietta, Ga.

Regarding "Keeping end users happy" (www.nwfusion.com, DocFinder: 4927):

The sad part about not supporting a Mac client in GroupWise is that the No. 1 and 2 groupware products, Lotus and Microsoft, both have released new clients for the Mac. If I had to decide between the three, GroupWise would not make the cut.

In education, where we support both Mac and PC users, GroupWise is now a less compelling solution. And don't try to convince a Mac user that WebAccess is a good replacement; if that is the case, why is Novell still working on the Win32 client?

Jeffrey Sessler
Assistant director of technical services
Scripps College
Claremont, Calif.

I enjoyed your review of GroupWise 6, but would like to point out a couple of errors in the sidebar "Keeping end users happy."

The remote mode has existed for years. Only the caching is new. You should also point out that remote has the capability to synchronize the remote mailbox from remote locations using a modem or Internet connection.

Also, using either of these modes does not prevent you from using WebAccess or accessing your Post Office box from other machines.

Mike Wiles
President
Resicorp
Dallas

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, *118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.*

www.nwfusion.com

MORE ONLINE

Find out what readers are saying about these and other topics.

DocFinder 4921

find it online

User View . Chuck Yoke

NETWORK FUNDAMENTALISM IS NOT A BAD THING

During a recent period of severance, I interviewed for a variety of positions, one of which was for a network architect/engineer. Being more of a manager than an engineer, I didn't expect much out of the interview, but I went anyway.

The interview entailed standing in front of a group of network engineers and discussing a variety of networking topics. I was asked to explain how a workstation talks to another workstation on the same subnet and on a different subnet. I was quizzed on routing protocols, routed protocols, Open Shortest Path First (OSPF), Routing Information Protocol and Border Gateway Protocol (BGP). I was asked to explain how distance-vector and link-state protocols worked. I was grilled on switching, routing and Recursive DNS. Because I was not actively involved in many of the areas that were discussed, I left feeling that I was probably not the caliber of employee they were seeking.

Imagine my surprise when I received an offer a few days later. It appears that I had been only one of two people interviewed who understood Proxy Address Resolution Protocol (ARP). I was also only one of two people who could explain how an IP address is resolved to the media access control address, how a router handles the Layer 2 communication process between two workstations on different subnets, and what the difference is between link-state and distance-vector routing protocols.

Even though I got tongue-tied trying to explain Recursive DNS, fumbled my way through BGP and completely blanked out on OSPF stub networks, I was still viewed as one of the top two applicants because of my ability to describe the very basics of IP networking.

While I decided not to accept their offer, the whole process made me stop and think. Is this the true state of network engineering today? Have employers placed so much emphasis on the "process" of networking — creating network diagrams and configuring routers — that the "foundation" of networking — how it all works — is being neglected? Has the industry become so fixated on certifications that we are being deluged with two-week wonders who can configure a router but have no idea how a routing protocol works? Have we created a workforce that is analogous to a mechanic who can change the spark plugs but has no idea how all the parts fit together?

Some people may believe it's not important for network architects and engineers to understand the underlying protocols. But in my mind, unless you understand OSPF, you can't configure it on the router. Unless you understand ARP, you can't troubleshoot connectivity problems.

I wouldn't trust my car to a mechanic who had no idea how the distributor, spark plugs, carburetor and crankshaft work together to make the wheels turn. And I wouldn't trust my network to an engineer who has no idea how ARP, Proxy ARP, DNS, network address translation, Simple Mail Transfer Protocol/Internet Message Access Protocol, routing protocols and routed protocols all work together to get this column from my hard drive to my editor's in-box.

Yoke is an IS manager in Denver. He can be reached at ckyoke@yahoo.com.

On Security . Winn Schwartau

NEEDED: AN ELECTRONIC BILL OF RIGHTS

Like it or not, Congress is coming to the firewall nearest you. The recent spate of computer security legislation is going to have an effect on every U.S. citizen. These laws include:

- The Health Insurance Portability and Accountability Act (HIPAA), which provides medical privacy and security from doctors' offices to insurance carriers (www.hcfa.gov/hipaa/hipaahm.htm).
- The Gramm-Leach-Bliley (GLB) Act of 1999, which provides computer security and privacy standards in the financial community (www.senate.gov/~banking/conf/).
- The Office of Management and Budget (OMB) standards, which are aimed at U.S. government security compliance (www.whitehouse.gov/WH/EOP/OMB/html/circulars/a130/a130.html).

These laws are meant to make the e-world safer for us, yet each bill and proposed amendment over the years has been watered down by special interest groups that, for their own reasons, want consistent access to our most personal information. The problem is Congress and the nature of lawmaking.

Think back to the Computer Security Act of 1987. It mandated specific levels of security for the entire federal government — yet the government chose to ignore it. Then fast forward to the ESIGN bill of 2000, which permitted binding contracts to be electronically signed. Sounds good, but the bill doesn't require proof of physical identity. An electronic identity is only as good as the security — physical and electronic — that surrounds it. The ESIGN bill is a test case waiting to happen because its security foundation is fundamentally wrong.

Congress doesn't know that security is a process, not a static set of rules. Security rules written 10, five or even three years ago mean little today. Those written today will likely have little import in five years. How do we get those "archaic" security laws updated or repealed? It takes another act of Congress.

HIPAA, GLB and OMB-style legislation is at the bits and bytes level. We need to soar to the 35,000-foot view. Why just provide HIPAA-style medical privacy or limited GLB financial services privacy? Why not do it right — with a proper, overarching Electronic Bill of Rights that's applicable to all industries and will put us in better privacy favor with our international brethren?

"In Cyberspace you are guilty until proven innocent." Our collective digital faces are rubbed into that unfortunate truism every day as decisions that affect our lives are made without our consent or knowledge. Each of us is known by our Digital Essence embodied as bits and bytes distributed among more than 50,000 anonymous databases over which we no have access or recourse to amend, edit or correct.

This is morally and ethically wrong. The 200-year-old concept of public records did not envision the Internet. The Constitution did not envision the records of 300 million Americans being sold on a CD for $29.95.

The solution is a six-point Electronic Bill of Rights, which states:

- I own my name. It is mine to do with as I please — not yours.
- You, as a business, may use my name for the purpose of our transaction only. You may not sell, barter or otherwise market my name, or any information about me, without my explicit permission.
- If you need to keep my name in files for the purpose of ongoing business, you will protect it from abuse, illicit access or accidental release.
- If you have any files containing my name, you must notify me of the existence of those files, send me copies on request and provide a reasonable means to add, delete or correct information.
- The government will create a new data classification called "Personal but unclassified," and set standards for its protection in the private sector and for legitimate government needs.
- I will have civil and criminal recourse against persons and organizations, private and governmental, that violate my Electronic Rights or let them be violated.

These simple principles are applicable to any technology or industry.

Undoubtedly, they will cause a backlash by organizations that do not believe in the privacy rights of individuals and make their living by twisting the concepts of public records and unregulated databases for their own benefit.

Nevertheless, these principles are required for an electronic citizenry to grow with trust and faith in each other and in government. Our political leaders must find the political courage to finally make cyberspace a safer place in which to play, live and conduct business.

Schwartau is president of Interpact, a security awareness consulting firm, and the author of Information Warfare, CyberShock *and* Internet and Computer Ethics for Kids. *He can be reached at winns@gte.net.*

CELL PHONE

MARTIN TRAILOR

Mark Hart is pursuing a workers' compensation claim against his employer on the grounds that a company-issued cell phone caused him to develop a brain tumor.

BY SHARON GAUDIN

Mark Hart was hired in August 1998 as director of worldwide sales for smartphone maker NeoPoint. As someone who demonstrated cellphones, often prototypes, to pick up sales, you could say being on the phone was Hart's job.

He started using a prototype of the NeoPoint 1000 in October 1998. Five months later, after suffering from headaches, fatigue and a series of seizures, the 45-year-old Hart was diagnosed with a fast-growing brain tumor on the right side of his head.

During surgery in July 1999 to try to remove the cancer, he had a stroke that left him partially paralyzed on his left side. The entire tumor could not be removed, and his health is still in jeopardy.

SAFETY

Recent legal claims against employers who issue cell phones raise questions about corporate liability. How can you protect yourself?

Convinced that using the company-issued cell phones on the job caused his brain tumor, Hart filed a workers' compensation claim with NeoPoint (which has since gone out of business) seeking compensation for lost wages and help paying his medical bills, according to Alissa Magenheim, his attorney.

NeoPoint's insurance carrier denied the claim, and Hart is now appealing to a California state appeals board, seeking to have the insurance carrier pay the claim. In fact, no one has ever won a court case based on the argument that cell phones were responsible for a person's health problems.

The Hart case and others like it, while human tragedies, raise serious issues for network and telecom executives. Are companies that issue cell phones to their employees opening themselves up to possible litigation? And what are IT managers to believe? Do cell phones cause health problems such as brain tumors, eye cancer, memory loss and fatigue? Or is that belief simply an unfounded health scare? And how should IT managers respond when employees or senior managers pose questions about cell phone risks?

"We're sitting on a time bomb here," says Libby Kelley, executive director of the Novato, Calif., Council on Wireless Technology Impacts, a nonprofit, public health advocacy group. "You're going to have one claim where somebody wins, and then it will start snowballing, just like it did with tobacco."

"You'll see increases [in workers' compensation claims]," predicts Diana Wann, a workers' compensation attorney in Indianapolis, Ind., and management co-chair for the workers' compensation committee of the American Bar Association. "You have the scientific proof problem to overcome, and that's a fairly large hurdle. But that doesn't mean claims won't be made against employers. [People] sue for everything. They'll bring actions, I'm sure."

There are at least three other cases, in addition to the Hart case, of U.S. employees suing or filing workers' compensation claims against their employers, claiming they developed brain tumors while using company-issued cell phones on the job.

Network executives who already have issued cell phones or are contemplating that move face a complicated issue that involves what is arguably the most popular consumer product ever — a product that is fast becoming a must-have for the overworked, deadline-ridden, hardly-ever-in-the-office business person.

No one is saying companies should amass legal teams and plot insurance and courtroom strategy. But companies should weigh the scientific reports and set policies on how they want business conducted and how they can limit potential liability.

To issue or not to issue

Companies issuing cell phones could be opening themselves up to potential liability for any cell phone-related health problems.

And more and more companies are issuing cell phones. There are an estimated 110 million cell phones in the U.S., according to the cell phone industry. And the percentage of companies paying for cell phones for their employees rose from 7% in 1999 to 11% in 2000, according to market research firm IDC.

Companies need to consider how integral cell phones are to their business. How important is it for employees to be in touch at all times? Will sales be lost, will opportunities be missed or will customers or users be kept waiting if employees aren't reachable by phone at all times?

At John Deere Ottumwa Works, in Ottumwa, Iowa, cell phones are an integral part of the way engineers and other technical workers do their jobs. "I think the problems they solve far outweigh the danger, at least for us," says Deb Parks, infrastructure analyst at John Deere Ottumwa. "[Employees] may be standing out in the middle of a hay field in Oklahoma, and they need to get some information and talk to someone here," Parks says.

SPECIAL REPORT CELL PHONES

GAO says more research needed

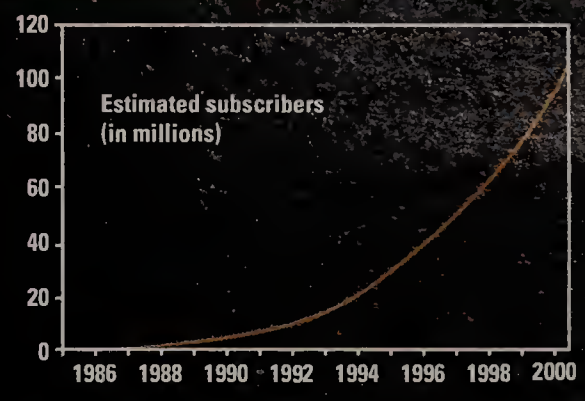
"According to FDA and others, the research to date does not show that mobile phone radiofrequency emissions have adverse health effects but there is not enough information at this point to conclude that these products are not without risk. While most epidemiological and laboratory studies related to the radiofrequency emissions of mobile phones have found no adverse health effects, the results of some studies have raised questions that require further research."

Source: U.S. General Accounting Office report on Mobile Phone Health Issues, May, 2001

How much power does a cell phone use?

A mobile phone is designed to operate at a maximum power level of 0.6 watts. A household microwave oven uses between 600 and 1,100 watts.

Cell phone usage explodes



In 1994, 16 million Americans subscribed to cellular phone services. Today, more than 110 million Americans are subscribers. Some experts predict that worldwide subscribership will reach 1.2 billion people by 2005.

Brain cancer is on the rise

The incidence of brain cancer has increased 25% since 1973, according to the National Cancer Institute. Each year, 185,000 Americans will be diagnosed with a primary or metastatic brain tumor, according to the National Brain Tumor Foundation.

How to check for emission levels

The Cellular Telecommunications and Internet Association decided last year that all CTIA-certified cell phones must have their radiofrequency emission levels made available to consumers. The problem is that the information is usually noted inside the box in which the phone is sold, so anyone who wants to compare levels needs to ask a store clerk to open multiple boxes.

You can get the rating for a specific cell phone at the Federal Communications Commission Web site (www.fcc.gov/oet/fccid) if you have the FCC identification number for the phone and if the phone is new enough to be listed.

Online exclusive: health hazard?

Follow our links to a host of related resources including the Council of Wireless Technology Impacts — citizens and professionals concerned about the safe uses of electromagnetic radiation. DocFinder: 4854

The company has issued between 120 and 130 cell phones from the Ottumwa office. "From our standpoint I don't have any issues . . . I know there's always a question about it, but most people chalk it up to, 'Ahh. I'm not going to worry about it.' "

On the other hand, Mike Riley, the chief scientist responsible for emerging technologies at R.R. Donnelly & Sons in Chicago, is still evaluating cell phones. Riley says people in the corporate communication department are considering handing out cell phones for work use. He has been keeping a close eye on the studies.

"Certainly any time an individual's health is impacted or it's brought into question, it needs to be taken a look at very seriously," Riley says. "There is simply not a definitive statement yet, and until there is, there will be a question of how safe or unsafe it's going to be."

Riley says if the company decides to issue cell phones, being upfront with employees will be the first step. "If we get in that position, we certainly would be forthcoming and say there are reports that may indicate this could be a health risk and you should be aware of that," Riley says. "I think it's only fair to let people know if there is an issue they need to be educated about. Then they can make their own choice."

The studies

Everyone agrees cell phones, both analog and digital, emit radio frequency radiation (RFR) from the antenna. That's simply how the calls or data are transmitted. And most will agree that some of that radiation is absorbed by the user's head, sinking in about 1 to 2 inches within the skull, causing some heating of the brain tissue.

What those absorbed radio waves and the resulting heat do — or don't do — is at the heart of the scientific debate.

The cell phone industry's trade group, the Cellular Telecommunications & Internet Association (CTIA), and cell phone manufacturers argue that there are no health risks from cell phone use.

"There's nothing in the science to suggest there are any adverse health effects with cell phones," says Jo-Anne Basile, vice president for external and industry relations for the CTIA. "The more studies they have, the more absolute they become."

Norman Sandler, director of global strategic issues for Motorola, one of the three major cell phone manufacturers, emphatically states that all Motorola's cell phones meet government safety standards, a promise made by all the leading producers.

He also notes that Motorola and the rest of the industry have spent a lot of money on research into RFR and its effect on humans.

"There are no biological changes that have been established vis a vis the use of mobile phones," Sandler says. He adds there are some questions that still need to be answered, but says there is no evidence of harm. "It's not that we don't think that. None of the scientific experts around the world think that. There have been numerous official scientific reviews undertaken by national governments and standard-setting bodies, and they've all come to the same conclusion — that there are no adverse health risks associated with use."

However, some scientists and government officials disagree.

• A study funded by the British government, undertaken by an independent group of scientists and published last year, warns people to not let children use cell phones and spurred the government to set up a

Cell phone industry faces legal tests

Gibb Brower, a 41-year-old, self-employed landscaper in San Diego, used a cell phone to help run his business from the road or on job sites for four years.

He says his cell phones — an analog Motorola flip phone and a digital Sony — caused the growth of two tumors and a surrounding cancer field on the right side of his head where he held the phone.

Brower, who is already more than a year into a predicted two-year life expectancy, has filed suit against Motorola, Sony and at least one carrier. The suit is still ongoing.

Brower says part of his remorse comes from using a cell phone against his own best judgement.

"It was easier logistically [to use a cell phone]," says Brower, who has gone through surgery, radiation and chemotherapy, and suffers from fatigue and short-term memory loss. "From day one, I was worried about contracting brain cancer because of earlier reports . . . Anything that can remotely give you a chance of cancer, I stay away from. But I was assured by the people I got the phone from that it was safe."

The landscaper was what those in the industry call a "big bucket user." He had a plan for 800 to 1,200 minutes of use per month. Brower maintains it was that use that made him sick.

The number of cases involving mobile phones is on the increase, although to date no one has won a judgment against a cell phone manufacturer.

• Michael Allweiss, a New Orleans attorney, has filed a class-action lawsuit that charges giants in the cellular industry with breach of warranty, alleging they made claims of safety that they knew were not true.

"Cell phones emit radio frequency radiation, and the evidence establishes to our satisfaction that it puts you at risk of harm when you use the phone," says Allweiss, who is working with Peter Angelos, the attorney from Maryland renowned for winning a reported $4.3 billion for his state against the tobacco industry.

• Angelos is representing Chris Newman, a neurologist who blames his brain tumor on his use of a cell phone. Newman has filed a lawsuit against many industry giants, including Motorola, Cell One and the Cellular Telecommunications & Internet Association.

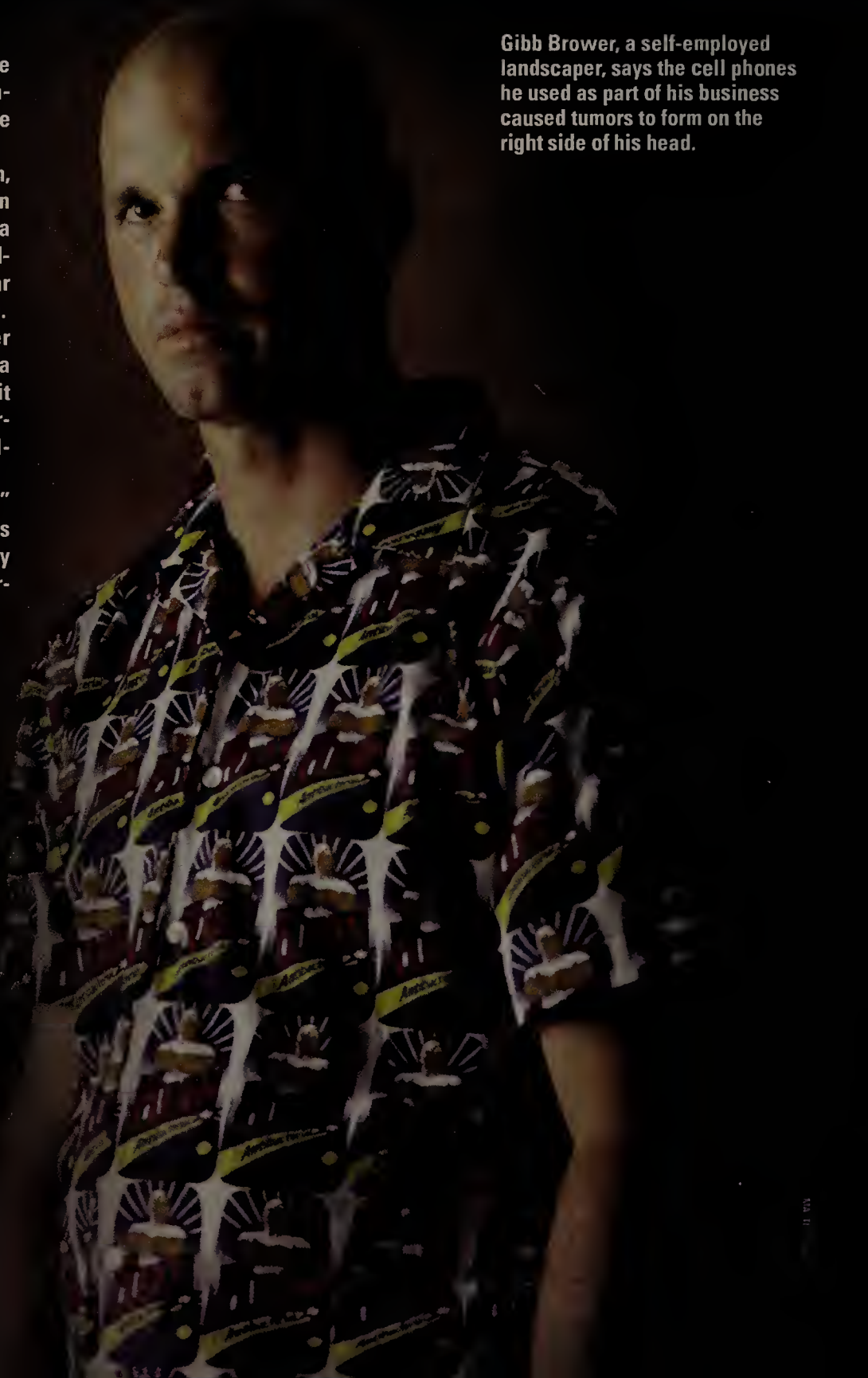
• Ian Elfenbaum, a managing partner with Whitney Wolfe Elfenbaum and Evers, a Chicago law firm, says he has filed suit against Motorola for one of the manufacturer's former phone testers, who has developed a brain tumor.

"His tumor is where he held the phone," says Elfenbaum, who adds that his client has undergone surgery and is considered totally disabled. "We have a lot of leads and information that I think will put it together."

Norman Sandler, director of global strategic issues for Motorola, says he can't ascribe motives to anyone, but notes that the issue of cell phone safety came to the forefront when the media caught hold of the Reynard case in 1993. David Reynard sued the manufacturer of his wife's cell phone, alleging the phone caused the brain tumor that killed her. The case was dismissed.

"It's a consequence of the popularity and the proliferation of the technology," Sandler says. "Mobile phones and other wireless devices are becoming more and more ubiquitous and attract a lot of attention. That popularity has fed a lot of the interest or speculation in the possible consequences of their use."

Adds Mikael Westmark, health and safety spokesperson for Ericsson, "The mobile telephone is the most popular consumer device ever, and this attracts people who want to make money."



Gibb Brower, a self-employed landscaper, says the cell phones he used as part of his business caused tumors to form on the right side of his head.

How workers' comp works

Q ***If an employee decides to use a cell phone for business purposes, can that employee file a claim against the employer?***

A No. A company is open to liability if the company issues the phone to the employee.

Q ***If an employee believes that the cell phone has caused health problems, what are the legal options?***

A The employee can file a workers' compensation claim against the employer. Workers' compensation laws stipulate that employers cannot be sued civilly, unless the worker can prove there was gross negligence. The laws vary state to state. And filing a workers' compensation claim doesn't prevent the injured worker from suing the phone's manufacturer or the service provider.

Q ***How is a workers' comp claim different from a civil suit?***

A The burden of proof is lower for a workers' compensation claim. The injured worker only needs to prove that she was injured on the job. She doesn't need to prove that her employer was negligent.

Q ***What is the financial impact if the employer loses a workers' comp claim.***

A Employers are insured for workers' compensation claims, so the insurance carrier would have to pay the claim. However, the more claims against a company, the higher their premiums will rise.

database of occupationally exposed workers.

"People can vary in their susceptibility to environmental hazards," the report by the Independent Expert Group on Mobile Phones states. "We conclude therefore that it is not possible at present to say that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects, and that the gaps in knowledge are sufficient to justify a precautionary approach."

Alex Ross, senior spokesman for the U.K. Department of Health, says his office distributed between 11 million and 12 million leaflets warning people to be cautious until more research is done. The British government has recently allocated £7 million, the equivalent of $10.64 million, for a research project expected to begin this fall.

• Dr. Russell Owen, chief of the radiation biology branch at the U.S. Food and Drug Administration's Center for Devices and Radiological Health, says, "There is no scientific evidence that demonstrates there are any adverse health effects from wireless phone radio frequency energy."

But Owen also says it's not so cut and dry. "Scientific literature really is a mixed bag of studies," he says. "There are positive and negative studies. Indeed there are conflicting studies. . . . Studies here and there do raise questions."

• Dr. Jerry Phillips, who was a research scientist for 30 years and a well-known cell phone radiation researcher for nine years, says in two separate studies he found evidence that cell phone frequency radiation causes biological effects.

Motorola funded Phillips' study and the scientist alleges that the cell phone manufacturer told him to delete any reference in presentations to DNA damage and biological effects. "There was to be absolutely no mention of DNA damage at any time," Phillips says. "The industry was more interested that we go away, that the results go away."

"I'm not sure what he's talking about," says Motorola Sandler. "We've gone to great lengths over the years to safeguard the independence of Motorola-sponsored researchers." Sandler adds that Phillips' research was a "mixed bag" that didn't come to any clear conclusions.

• The CTIA sank $25 million into the Wireless Technology Research (WTR) program, a six-year effort through the late 1990s aimed at proving the safety of the cell phone. The CTIA put Dr. George Carlo in charge of the project.

However, Carlo broke ranks with the CTIA and reported that WTR studies showed there is potential for health risks. "I recommended that they let the consumers know what they know so they can make their own choices about the amount of risk they want to assume," says Carlo, who has been shunned and derided by the industry. Carlo went on to write a book, *Cell Phones, Invisible Hazards in the Wireless Age*.

• One of the studies that came out of Carlo's WTR effort was a four-year case study through the American Health Foundation, headed up by Joshua Muscat.

Muscat says there were no signs of a correlation between cell phone use and health problems, except for one rare type of tumor. The American Health Foundation, according to Muscat, is applying for more funding to conduct more research on that rare tumor.

"I don't see how one could come away with any other conclusion than there is no risk from using [cell phones]," Muscat says. "That's not to say there might not be potential for concern in the long term . . . But there's nothing to justify a warning that there is a pending epidemic of brain tumors because of cell phones."

• That's also the message from several other studies, including an epidemiological study conducted by the National Cancer Institute and a Danish study of 420,000 cell phone users that was published this spring.

"The fact of the matter is [these studies] are significant because of their size and their rigor," Basile of the CTIA says. "There have been no indications of adverse health effects."

However, these studies have been met with skepticism from critics who argue that the studies haven't been large enough, haven't looked at longtime cell phone users and haven't looked at specific kinds of tumors, such as those that grow in the emissions absorption area on the edge of the skull.

"I think none of the studies provide much information," says Maria Feychting, a radiation and cancer researcher with the Institute of Environmental Medicine at the Karolinska Institute in Stockholm, Sweden. "They have problems with study design. People

FCC/FDA FAQ

Q ***Which federal agency is in charge of regulating mobile phones?***

A The Federal Communications Commission, although the Food and Drug Administration (FDA) has oversight of the cell phone industry and health-related issues.

Q ***Has the FCC set rules for how much radiofrequency energy from mobile phones is OK?***

A In 1996, the FCC accepted a standard, developed by the IEEE, of 1.6 watts per kilogram averaged over 1 gram of tissue. The exposure limit is based on the heating effects of radiofrequency energy on human tissue, because it has been shown that radiofrequency energy at high enough power can heat tissue, causing damage. The scientific measurement is called "specific absorption rate [SAR]."

Q ***Does the FCC test mobile phones for compliance?***

A No, manufacturers are responsible for testing phones for compliance.

Q ***Does the industry have uniform testing procedures?***

A No, an international group has been working since 1997 to develop uniform testing procedures but has not completed its work.

Q ***How is the FDA involved?***

A The FDA is responsible for protecting public health and safety with respect to radiation from electronic products.

Q ***Is the FDA's radiological health program adequately funded?***

A Not according to Dr. David Feigel, director of the FDA's Center for Device and Radiological Health. In the center's Year 2000 annual report, he writes, "Part of our center's mission . . . is to ensure the safety of radiation-emitting consumer and industrial products. Because of the need to transfer funds and personnel over the past two decades from radiological health to medical device activities, the radiological health program, which now has only 10% of the center's resources, cannot adequately do its job under the law. The situation is worsening. . ."

Q ***Does the FDA test phones before they are marketed?***

A No, the FDA evaluates industry data, but doesn't conduct its own testing.

Q ***Does the FCC plan to conduct its own tests on cell phones?***

A Yes, the FCC wants to conduct spot tests, but the FCC faces a serious staffing problem. In fact, the FCC has only one radiofrequency exposure specialist on staff.

Q ***Is the FDA involved in scientific studies related to cell phone safety.***

A The FDA has not conducted its own studies, but is involved in a research program called CRADA being conducted by the cell phone industry.

Q ***Does the FDA lose credibility when it partners with industry groups on cell phone testing?***

A "That reminds me of the fox guarding the henhouse," says Ian Elfenbaum, a Chicago attorney who is representing a man who says his brain tumor was caused by using a cell phone on the job.

The FDA's Dr. Russell Owen says he has no problem with the CTIA funding the research effort or in participating heavily in it. "We've given them specific recommendations," says Owen. "There's not really anything unusual. In the case of this particular agreement, there's a larger degree of government involvement than with your typical drug application."

Q ***Are other government officials getting involved?***

A Sen. Joseph Lieberman, D-Conn., is one of the few U.S. politicians to jump into the fray. Leiberman has asked the General Accounting Office to audit the cost of research and the allocation of that funding. He is also pushing for consumers to be provided with more up-to-date information about health risks associated with cell phone use.

Sen. Patrick Leahy, D-Vt., is pushing a bill seeking federal funding for cell phone and health-related research.

in their studies haven't used cell phones enough so they have too few cases and controls of people who have used cell phones for a long time."

Feychting is part of a 13-country study of brain, neck and head tumors headed up by the International Agency for Research on Cancer in France. Feychting says the four-year study won't be sufficient to check long-term effects, but it should propel research further than it's gone up to this point.

Safety precautions

If a company decides that workers need to be equipped with cell phones, what then? What policies or procedures should network executives put in place?

Bill Plummer, vice president of government and industry affairs for Nokia, says people should have options of different ways to use cell phones for their convenience, not for any real safety issues.

"Whether they're employees receiving a phone from a company or a consumer off the street, they should do what makes them feel comfortable," says Plummer, conducting the interview from his car using a hands-free cell phone device. "Certainly, I can see where consumers should be aware of different lifestyle choices available to them ... whether it's a belt clip or a hands-free device."

Here are some tips gathered from people on both sides of the debate — lawyers, cancer patients and gadget aficionados:

• Cheapest isn't always best. Investigate many different cell phone models, focusing on the brands with the lowest RF ratings. But keep in mind that manufacturers rate themselves. There's no independent third-party here. If the economic slowdown isn't affecting your business, you may want to have the phones tested yourself. In the future, look for phones that are independently rated.

• Talk with your employees. Hold mandatory meetings for anyone using a cell phone on the job, or include anyone who uses one for personal reasons and simply wants more information. Talk to them about the studies. Tell them where they can get more information on the research (for a list of links, see www.nwfusion.com, DocFinder: 4854).

• Recommend employees keep the phone as far away from their body as possible when it's in use. Tell them to point the antenna away from them and anyone near them. They also should be aware that if they wear their phone on their bodies, clipped to their pants or in a pants or shirt pocket, they can be exposed to bursts of emissions caused by incoming calls or data transmissions. Those emissions can be absorbed into the body as easily, if not more easily, than the head. People concerned about health effects say they worry those bursts could potentially lead to problems such as liver, kidney, ovarian or testicular cancer.

• Issue headsets along with each cell phone.

• Be aware that there has been little, if any, testing of some protective devices, such as radiation shields. Buy tested products.

• Tell employees to use a regular wired phone when possible.

"It's incumbent upon employers to make sure any equipment they're issuing to employees is safe to use," says Hart, who is battling cancer. "I think employers don't give it a thought."◪

Patent filings raise questions

The debate over the potential connection between cell phones and health problems has been fueled by the discovery that even as major cell phone manufacturers argued that phones pose no health risks, the companies were filing patents for devices designed to protect users from radiation emitted by the phones.

The *Network World* discovery of the patents, which date back to the early 1990s, heats up the debate about whether cell phones cause health problems ranging from brain tumors to eye cancer to fatigue and memory loss.

The patents are for devices that include an alarm, an antenna that extends above the user's head and an antenna shroud (see www.nwfusion.com, DocFinder: 4924).

While the patents seem to indicate the manufacturers were looking for ways to reduce radio frequency emissions for safety reasons, some companies insisted they were simply trying to make the devices more efficient while others said they were unaware of the patents filed by individual employees.

"When they talk about the health risks [in] corporate documents and then say there are no health risks ... how could there be such a glaring inconsistency?" asks Dr. George Carlo, who at one time worked for the Cellular Telecommunications & Internet Association, a Washington, D.C., trade group. Carlo headed up a six-year, $25 million research effort into the question of whether the use of cell phones causes genetic, biological or health effects.

Norman Sandler, director of global strategic issues for Motorola, one of the cell phone manufacturers that has patented such technology, says: "It should not be ... implied that we think there's any health risk associated with the use of phones. Quite frankly, patent applications are often written by engineers and patent attorneys and don't necessarily [address] particular concerns of the company."

Scientific studies are a mixed bag

Research into the safety of cellular phones has resulted in some studies that show no adverse effects, and others that raise questions.

No problem

• **Epidemiology:** A study conducted by members of the National Cancer Institute's Division of Cancer Epidemiology and Genetics and published this spring in *The New England Journal of Medicine* showed no association between cell phone users and certain types of brain tumors. The study, conducted between 1994 and 1998, compared 782 brain cancer patients with 799 controls who had been admitted to the same hospitals for different reasons.

• **Danish study:** A study of 420,000 Danish cell phone users, conducted by the Danish Cancer Society and published in the *Journal of the National Cancer Institute* this spring, showed no correlation between cell phone use and brain or nervous system cancers. Some people in the study used a cell phone for 10 years, but it was reported that the majority had used them for about three years.

• **Case study:** Researchers at the American Health Foundation, after conducting a four-year case-control study that was published last December in the *Journal of the American Medical Association*, said they found no association between cell phone use and brain cancer risk. Joshua Muscat headed the study, which looked at 469 people with brain cancer and 422 people without brain cancer. However, Muscat told *Network World* that he found a correlation in a subgroup of patients with a rare type of slow-growing tumor. He says he wants to conduct more studies.

• **Royal Society of Canada:** An Expert Panel Report prepared under the direction of the Royal Society of Canada for Health Canada, states that studies do not provide conclusive evidence of adverse health effects from radio frequency exposure. However, the report also notes that there are documented biological effects of RF fields at even low levels and those effects could "potentially be associated with adverse health effects." The report calls for more research.

Risky business

• **Human blood study:** Dr. Ray Tice and Dr. Graham Hook of the Integrated Laboratory Systems in Research Triangle Park, N.C., conducted an 18-month-long study, which ended last year, to evaluate the genetic effects of cell phone frequency fields. Although tests for chromosome damage and mutations in bacterial cells showed no effect, a test on micronuclei in human blood cells showed a biological effect. When human blood in a test tube was exposed to cell phone radiation for 24 hours, it caused an eight-fold increase in micronuclei cells, which means there is something wrong with the way the cell divides or is able to repair itself. Some scientists say there is a direct link between the presence of micronuclei and cancer.

• **Blood-brain barrier:** A 1994 study by Dr. Leif Salford showed a breakdown in the blood-brain barrier of rats when they were exposed to radio waves. The blood-brain barrier refers to blood vessels in the head that have filtering capabilities to protect the brain from toxins.

• **Epidemiology:** In 2000, Dr. Lennart Hardell, while working for the Department of Oncology at Orebro Medical Center in Orebro, Sweden, conducted an epidemiological study under the direction of the World Health Organization. The study concluded that the risk of developing a tumor in the area near the cell phone antenna was 2.4 times greater than the chance that a tumor would develop in any other portion of the brain.

• **German study:** In January, a team of scientists at the University of Essen in Germany concluded that people who regularly use a mobile phone are three times more likely to develop cancer of the eye. The study, which was published in the January issue of *Epidemiology*, focused on 118 patients with eye cancer, comparing their histories of cell phone usage with that of a control group.

• **Swedish study:** A study of 1,617 brain tumor patients, aged 20 to 80, found the use of analog phones for at least one year but less than 10 years increased the risk of brain cancer by 26 percent, and that number went up to 77 percent for those using analog phones for more than 10 years, according to Dr. Lennart Hardell, who conducted the research with Dr. Kjell Hansson Mild.

Management Strategies

Career Development, Project Management, Business Justification

Alternative work arrangements

Worker-friendly options such as telecommuting are on the rise. Here's how two companies make it work.

BY TOM DUFFY

As the network operations team leader at Lotus in Cambridge, Mass., Jay Bendonis often finds himself woken in the middle of the night to repair a network outage.

But if he stays all night, his colleagues might have a tough time finding him the next day.

"If I'm paged at 2 a.m. and I've been here working until 8 or 9 in the morning I'm like, 'OK guys, I'm going home. See you,' " he says.

Lotus' network operations team is responsible for keeping the WAN up and running 24-7. With 10,000 devices on the network, it's a big job. But while that might inspire rigidity among some managers, at Lotus it allows for just the opposite.

Bendonis says an informal, flextime arrangement within his department allows some of his staffers to start at 7 a.m. and knock off at 3 p.m. Others start at 10 a.m. and finish up between 7 p.m. and 8 p.m. The flexibility extends week to week as well.

"Instead of saying, 'We worked 80 hours this week, let's do it again next week,' we try to rotate people," he says. "So the next week Bob gets a day off, and the following week someone else gets a day off. Otherwise, you lose employees."

From flextime to telecommuting and job sharing, alternative work arrangements are taking hold in the workplace. As one indication, 23.6 million people teleworked during the third quarter of 2000, as compared with about 8.5 million in 1995, according to the International Telework Association and Council (ITAC).

Telecommuting and other arrangements offer advantages to workers, including increased time with family and less time spent commuting. But even enthusiastic supporters cite downsides, which include lack of administrative support and reduced contact with co-workers.

Some situations are more compatible with flexible work arrangements than others. At network consulting firm GNTS, about 85% of the approximately 400 employees are considered telecommuters, according to Jeremy Bono, director of recruiting. The term is somewhat misleading, because most consultants are at client sites most of the time. Still, when they aren't on the road installing networking infrastructure, most work from home offices.

Bono, who works out of his home in Londonderry, N.H., says that eliminating workers' commutes, even one or two days per week, can make them happier and more productive.

"There are a lot of studies that suggest people who work at home outperform in-office workers by as much as 10% or 15%," he says. "From where I live some people commute into Boston [a 90-minute trip], and they're pretty frustrated when they get there. It can affect your workday and take some time to adjust."

Of course, there are benefits to the company as well, especially when the number of telecommuters is high.

"It probably saves us between 50% and 60% per employee," says Bono, who factors in the cost of office space along with reduced phone and IT expenses.

Bono says that letting employees work from home allows his firm to recruit the best and the brightest without concern about where the people live. Still, the GNTS tries to cluster its hires around major metropolitan areas, so that it's easier to get people together for the quarterly meetings it holds to let co-workers spend time with one another.

Russ Rogers is director of solutions consulting for GNTS and lives in Portsmouth, N.H., not far from the company's only office, in Newington, N.H. He typically spends four days per week at client sites and the fifth day at home.

He says he's happy with telecommuting but there are complications.

"I don't get good cell phone coverage where I live, so if it [doesn't work], you don't have access to your people," he says. "And I don't have DSL or broadband capability in my neighborhood so I'm stuck using good old-fashioned [dial-up]."

Chuck Wilsker, executive director of the ITAC, says some middle managers still resist such programs as telecommuting because they feel they have less control over their workers. But advances are being made, he says.

The federal government recently mandated that telecommuting be made available to at least a portion of federal employees whose jobs are suited to it.

Meanwhile, the Environmental Protection Agency has started a pilot program in several cities whereby companies can earn tax credits for every mile not driven by telecommuting employees.

Back at Lotus, Bendonis says he is hoping to add telecommuting to the repertoire of options for those in his department. One motivator is the lack of space for new employees.

Among the innovations that will allow more of the network team to work remotely is creating a simple list of server connections in the data center.

"That way if we know which server is having a problem and we know which port it's connected into, someone could telnet into the switch from anywhere in the world and do a lot of the troubleshooting from there," he says.

Duffy is a freelance writer in Haydenville, Mass. He can be reached at tomduffy62@aol.com.

Tying teleworkers to the enterprise

www.nwfusion.com/net.worker/index.html

Forms of job flexibility

- **Job sharing:** Two (or more) employees work part time to fulfill the duties of a single full-time position.
- **Telecommuting:** Working at home one or more days a week and keeping in touch with the office via technology. Only 9% of Americans telecommute at least some of the time. But according to a study by Rutgers University and the University of Connecticut, 41% of workers say they can do their jobs by telecommuting.
- **Flextime:** The practice of letting employees alter their arrival and departure hours from the traditional 9-to-5 business hours. This is often done to let workers avoid rush-hour traffic or accommodate the schedules of working parents.
- **Compressed work week:** Working 40 hours in fewer than five days. The most common arrangement is working four 10-hour days and enjoying an extra weekday off.

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ALTERNATIVE ARRANGEMENTS

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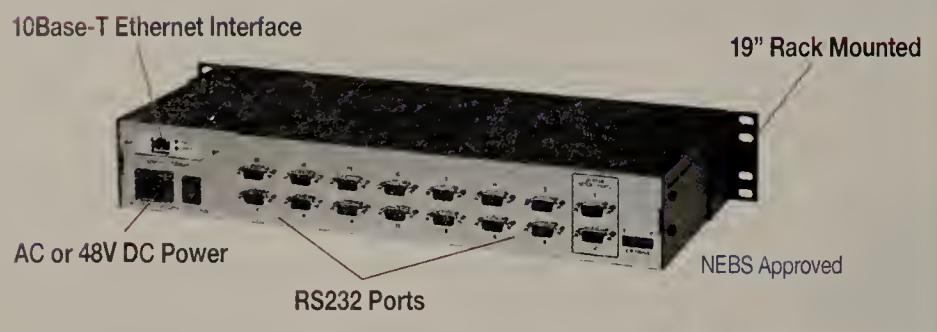

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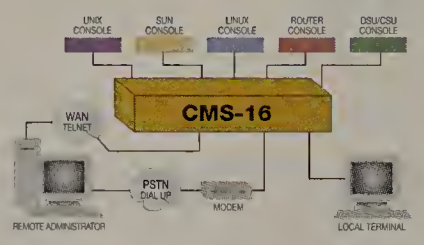

Telnet and Dial-Up Network Power Switch

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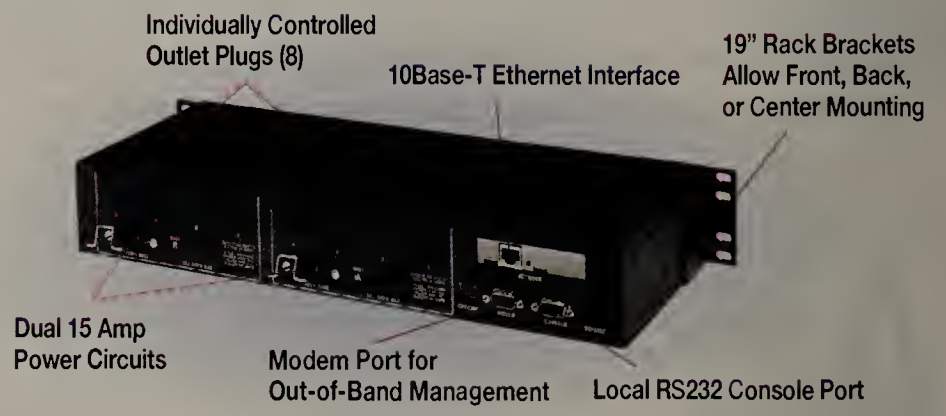

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- Network Security Features
- 115-VAC (230-VAC available)
- Power-Up Sequencing

Telnet and Dial-Up AC Power Switch

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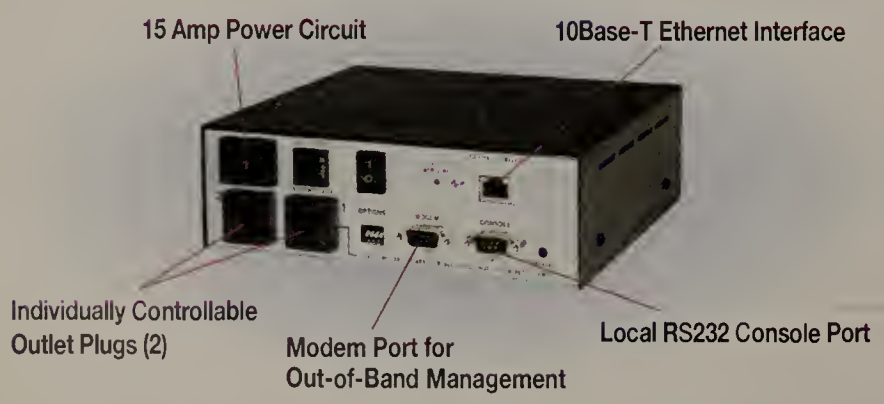

Telnet Power Switch (TPS)

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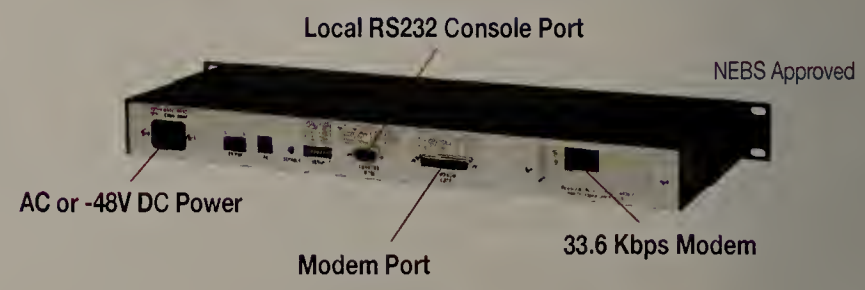
- On/Off/Reboot Switching
- Outlet-Specific Password Security
- Network Security Features
- Manual On/Off Buttons
- Switches 15-Amp Load

Secure Modem for Remote Dial-Up Management

Dial-up Access to Equipment Bays



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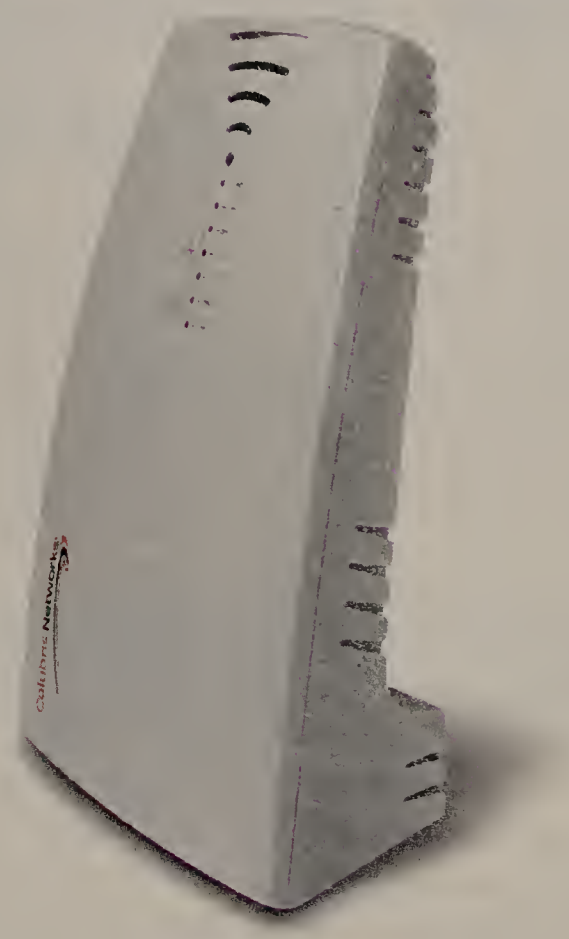

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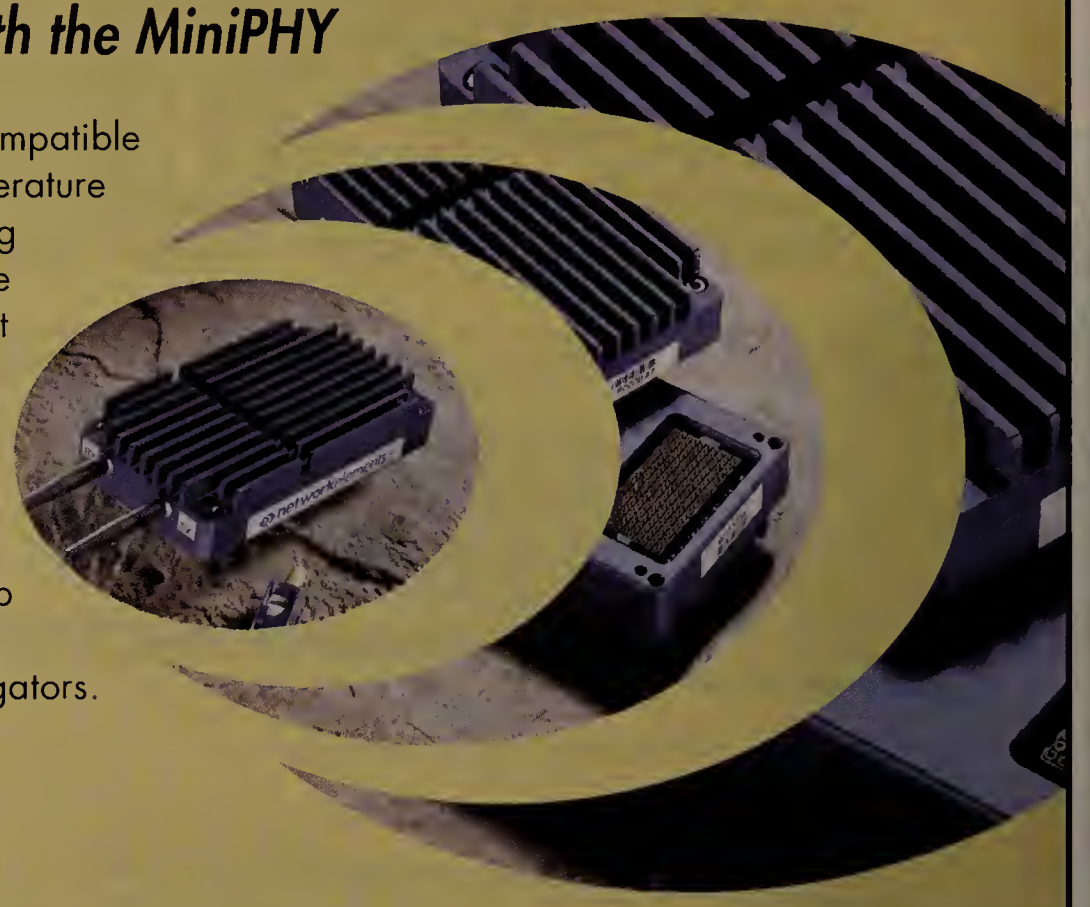

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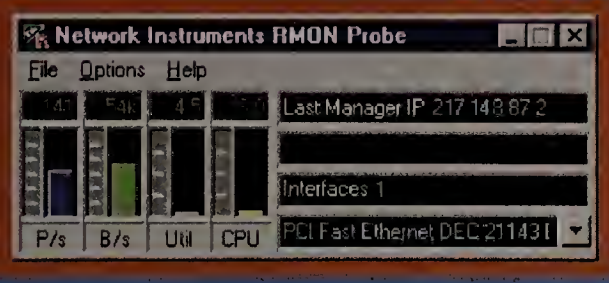

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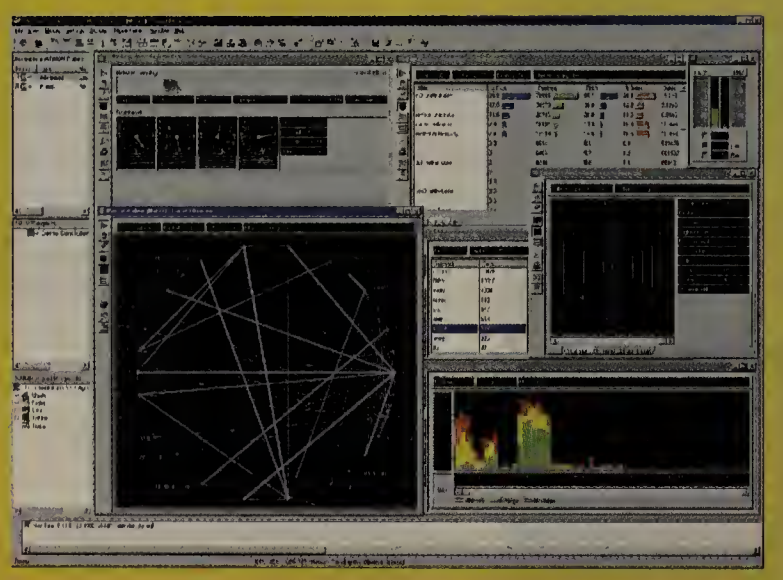

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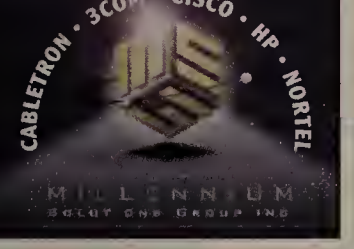

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Most every IT professional evaluates career opportunities based on a list of priorities. If working with advanced technology and continued professional development are at the top of the list but there's still something missing, it may be the basic reason for going to work.

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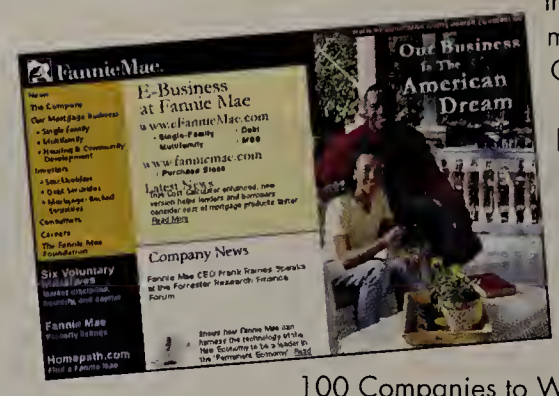
Fannie Mae's customers are mortgage lenders. "We are working with them to streamline the entire mortgage origination process to reduce the time and cost of getting a mortgage, while also expanding the lender's markets," says Farrell. **Fannie Mae's** web-based product, MORNET Plus, automates the process, linking together the mortgage lender, rating agencies, credit providers, underwriters, appraisers and title service providers.



The company also works the other end of the mortgage process – investors to provide capital for the mortgages **Fannie Mae** funds by issuing debt. Farrell says two web-based systems are used to streamline the process – the bill auction system for auctioning short-term debt on a weekly basis and the Benchmark Automated Syndication System (BASS) for long-term debt issuance.

"We'll continue to grow and expand all of these products," says Farrell. "We want to automate the two ends – lending and investing." The company also has been involved in the development of technology and data standards for electronic mortgages. **Fannie Mae** purchased the first fully electronic mortgage in October 2000.

"We are looking for people who have initiative and drive and the propensity for results," Farrell says. **Fannie Mae** is moving more toward JAVA development and uses Web Logic for its server. Farrell says XML is being used more frequently as a transport vehicle, and database management is handled via Oracle and Sybase.

With more than $800 billion in web transactions last year, **Fannie Mae** has been named "E-Business of the Year in Financial Services" by *Internet Week* magazine. The company is a fixture on the *Fortune Magazine* list of "Top 100 Companies to Work for in America," was listed on *Computerworld's* list of "100 Best Places to Work in IT" and won acclaim for its benefits package from *Money Magazine*, which named it as the leader on its "Best Company Benefits" list.

For more job opportunities with firms doing web development, turn to the pages of ITcareers.

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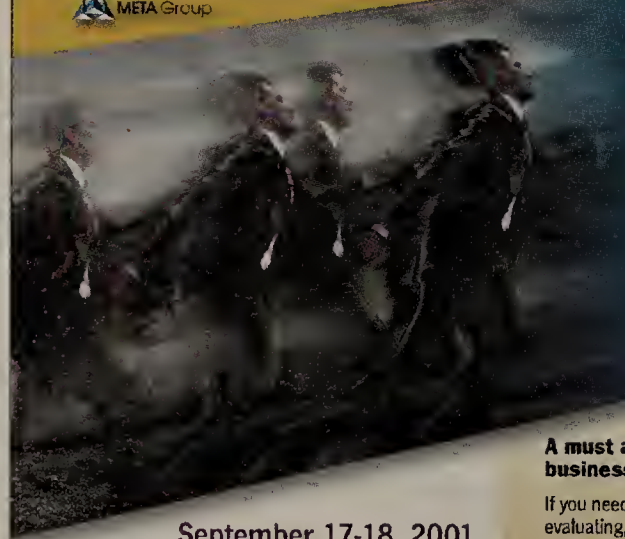

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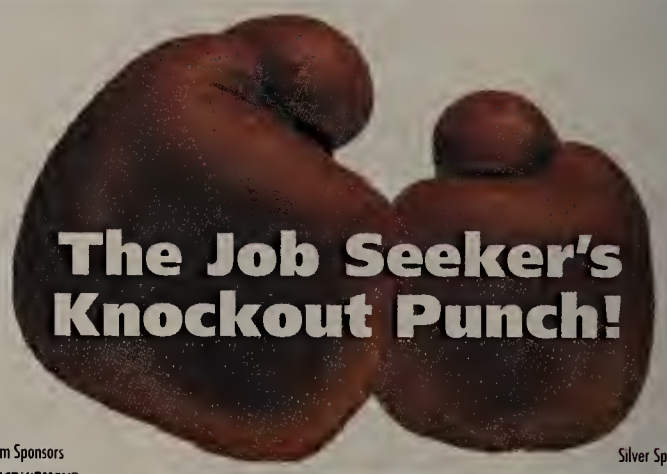

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Backspin

A Hierarchy of Techie Needs

"Abraham Maslow . . . posited a hierarchy of human needs. . . . [He] published his first conceptualization of his theory over 50 years ago. . . . An interesting phenomenon is that in spite of a lack of evidence to support his hierarchy, it enjoys wide acceptance."

— Dr. William Huitt, Department of Psychology and Counseling, Valdosta State University

MARK GIBBS

After last week's column about Mr. X's prickly work situation — a network gig at a small company that doesn't want to fund the required network overhaul — many of you wrote in with suggestions about what he should do.

But the real problem was that Mr. X wasn't motivated by this particular work situation — and being motivated is crucial to human happiness.

The whole question of what makes humans what we are and drives us to do what we do has fascinated mankind since the first Homo Sapiens took the dramatic and surprising step of saying "Ugh, me Tharg." With a little evolutionary help, Tharg began to ask "How Tharg eat?" A scant few thousand years later this became "Darling, where shall we have lunch?"

Maslow, much to the irritation of many later philosophers, thought long and hard (probably over lunch) and concluded that humans have a hierarchy of eight needs (called, not surprisingly, "Maslow's Hierarchy of Needs"). These are:

1) Physiological: hunger, thirst, bodily comforts and others.

2) Safety/security: out of danger.

3) Belongingness and love: affiliate with others, be accepted.

4) Esteem: to achieve, be competent, and gain approval and recognition.

5) Cognitive: to know, understand and explore.

6) Aesthetic: symmetry, order and beauty.

7) Self-actualization: to find fulfillment and realize one's potential.

8) Transcendence: to help others find self-fulfillment and realize their potential.

Now, exactly what this has to do with networking, you may be wondering.

You see, in the endless quest for self-knowledge, CIOs, network executives, technicians, support staff and Mr. X need to recognize that there is a Hierarchy of Techie Needs. This hierarchy is as follows:

1) Physiological: Your office has sodas, candy bars and coffee.

2) Safety/security: You have the superuser password.

3) Belongingness and love: You can spend an hour in a riveting conversation on LDAP or XML or any other acronym that leaves nontechies shaking their heads and making jokes about pocket protectors.

4) Esteem: When you hear the words, "Dude, cool hack, way to go!" you know you have gained approval and recognition.

5) Cognitive: The need to know and explore is almost instinctive for the techie. When some computer responds with something like, "Welcome President Bush," you know the hacking, er, exploration was worth it.

6) Aesthetic: You get to specify the user interface the user should have and will get (as opposed to what they want).

7) Self-actualization: When you hear the words, "Dude, cool hack, how'd you do that?" your potential is being realized.

8) Transcendence: When you hear yourself saying, "OK, I'll show you how the accounts system works but don't tell anyone . . ."

Comparing Mr. X's situation to this hierarchy shows that, while he probably had achieved items 1 and 2, everything got sketchy from 3 onward. I will discuss your suggestions and the above hierarchy with him next time we meet. Until he gets a job, I'll have to buy the drinks.

So, how does your job meet the Hierarchy of Techie Needs? Self-analysis to nwcolumn@gibbs.com.

'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

Adlex — a maker of performance monitoring and management tools — is housed in a striking blue office building perched on pillars atop a hill off the busy Route 495 high-tech corridor in Marlboro, Mass. Prior to repair work and Adlex's tenancy, the four-story building had for years stood vacant — condemned, actually — out of fear it would topple under its own weight.

Sort of like popular Web sites do from time to time, a fate that Adlex says it can help customers avoid.

The company sells UserVisibility appliances that it says provide more granular — and therefore actionable — customer-experience data about Web sites, VPNs and WANs. The key, according to **Adlex Vice President Richard Harrison,** is that the products monitor and report on actual user sessions, as opposed to test traffic generated by software agents. This lets a site operator know exactly whose ox is being gored when performance problems arise, he says.

Adlex customers include Fidelity, Prudential, Raytheon and SBC Communications. Privately funded, the company earlier this year assembled a $10.5 million first round led by **Roger (The "M" in EMC) Marino.**

The company's story makes theoretical sense. However, *Network World* editors who've been out on our "State of the LAN" tour report waves of skepticism from network professionals regarding the grandiose quality-of-service claims being bandied about by vendors.

Harrison insists that appetites for ensuring top-shelf service are becoming ravenous among companies that cater to high-end clientele: banks, brokerages and the like.

"If you're my million-dollar account, we're going to fix [a subpar Web experience] for you," Harrison says of that coveted fat cat. "And we're going to call you up and say we're sorry."

Presuming you and your pain can be identified, of course, which gets back to what Adlex is peddling.

The ink wasn't dry on the **U.S. Appeals Court ruling about Microsoft** last week when a curiously twisted press release from the **Computer & Communications Industry Association** found my in-box: "Microsoft Domination Dealt Setback By Appeals Court," blared the headline.

Say, what? Hadn't I just read a handful of online news stories about the court's decision to vacate Judge Thomas Foot-in-Mouth Jackson's break-up order? Weren't they dancing in the streets in Redmond?

Apparently not, according to this industry group, which had been active and noisy during the seemingly endless Microsoft antitrust case.

"In upholding the most serious of the Sherman Act violations found by the District Court, this Court of Appeals, considered the most predisposed to support Microsoft, has signaled that it too understands the gravity of Microsoft's illegal behavior," the group says. "The foundation therefore exists for an equally serious and effective remedy."

Can't you just hear **Bill Gates** cackling over that one? Heck, **Steve Ballmer** might rupture an internal organ if he read it.

Yes, the anti-Microsoft forces will regroup and continue to press their fight.

But for all practical purposes, this case is as over as Gates and Ballmer are rich.

If not for gallows humor, there wouldn't be much to laugh about these days at **Novell.**

They've picked up on this vibe at **SatireWire.com,** where you can read a "story" about new **Novell CEO Jack Messman's** pledge to "do the honorable thing and take his own life if he is unable to turn company fortunes around within six months." . . . Seems extreme, but the full text is available at www.satirewire.com/news/0103/novell.shtml.

As for the real story about Messman's plan to revamp the foundering network giant, read Deni Connor's story on the front page of this issue.

Have a comment about any of this? Then do the honorable thing and write to buzz@nww.com.

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